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ORIGINAL ARTICLES.

WHAT CAN WE DO FOR THE CHRONIC INVALID?—A PLEA.

Read before the Kentucky State Medical Society, at Owensboro, Kentucky.

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A chronic invalid is one who has passed through the acute stages of a disease, and failing of cure, remains in this state, or gradually growing worse, becomes partially or completely incapacitated for labor or the duties of life. In no sense of the word can chronic disease be distorted into meaning incurable disease, for a very large percentage are capable of entire relief, and of the remainder there are few indeed that can not be so improved as to render their lives useful and free from suffering. The failure to realize this difference, and to act promptly, has resulted in the loss of valuable time and entailed much suffering. We must understand that an incurable disease is one which has resisted the scientific, careful and persistent application of all remedial measures, singly or combined, and applied under favorable conditions. Nearly all chronic diseases and disorders fall principally into three classes: 1, the nervous, embracing neurasthenia, hysteria, insomnia, epilepsy, melancholia, migrain, irritable spine, tic douloureux, neuralgia, chronic headache and head pains, drug habits, chronic alcoholism, locomotor ataxia, ataxic paraplegia, diabetes and functional pelvic disorders; 2, the gastro-intestinal class, in which we find the hyperpepsias, hypopepsias, gastric dilatation, dyspepsia, so-called intestinal indigestion and chronic indigestion; 3, the metabolic and nutritional class, including uric acid diathesis, chronic rheumatism, rheumatism, rheumatic and rheumatoid arthritis, gout, the simple anemias, chlorosis, adynamia, phthisis pulmonalis, and obesity. The disease frequently presents in its inception the usual symptoms of one of the above named, but by extension and further involvement, manifold symptoms are superadded, pertaining not alone to the primary disease, but alien to it, and these new conditions increase the symptomatology, modify the past status and make the *status præsens* seemingly bizarre.

In the evolution of man, regular physiologic cycles were established, action was followed by rest, and health maintained. But the nineteenth century, the century of possibilities, has set a pace that few can keep—days of intense struggle, nights of excitement and dissipation, and the law of the survival of the fittest seems our only guiding star. The elusive and delusive dollar, siren-like, lures us on, and health and happiness are considered small sacrifices if success can be attained.

As a result of such nerve wearing exertion, habits detrimental to the economy are rapidly formed, and with difficulty removed. As the strain becomes greater and greater, a hyperexcitability is induced, and recourse is had to stimulants and narcotics to increase the flagging capacities, or to stifle the warnings nature gives. Rest is with difficulty obtained, and hypnotics of all kinds are used, in the vain hope that the pathologic conditions so produced are physiologic, and thus we are afforded an opportunity for watching the slow formation of the drug habitué. Another phase is frequently observed. The patient reveling in the possession of full health violates all the established laws of hygiene, deviates from all the axioms of health, living to learn, later in life, the many penalties of such trangressions. Life, the sum total of active, useful functionation, may be prolonged and its scope wonderfully extended, provided we realize the necessity of high physiologic activity and so arrange our lives as to attain this result. Death, the cessation of all functionation, is in the largest number of cases premature and dependent on witting violation of laws well defined and fixed. Life, and in fact all vital activity, originates in, and is maintained by, the nervous system, and the difference between the living, breathing human being, in whom the exuberance of perfect functionation exists, and the putrefying cadaver, is the difference between the presence and proper distribution of nerve energy and force and its absence, and if its absence will produce death and decomposition, certainly the failure of the great central nerve system to do its work properly will result primarily in the loss of functional activity, which if long continued may produce organic disease, and as to whether organic disease will result is solely dependent on the integrity of the higher brain centers. The differentiation of protoplasm into specialized tissues, and their dependence and interdependence on one another for existence, and the necessity for the harmonious action of the complete whole, brings into view another wonderful and interesting fact, and shows the need of perfect neural action. Any disease, therefore, that starts in any disorder of function, starts primarily in the nervous system, and this disorder will be exhibited either in the neural organs themselves or in some particular set or system of organs, and these in turn by increasing the demand for nerve force, or interfering in its proper storage will extend the baneful influence until what

was primarily simple localized loss of function has become well recognized disorder or disease. As a resultant of such action the perfect elaboration of nutrient material is impossible, metabolism becomes changed, its products toxic, the eliminative function is seriously interfered with, regeneration of all tissues is checked, and a denutritional state established. I have never seen a case of any chronic disease or disorder in which the nervous system did not exert a powerful influence in its causation, its perpetuation or its relief. Natural laws are slow, but certain in their action. No human is exempt from their inexorable and immutable effects—attacking the guilty as well as the innocent, the just as well as the unjust. No disease, governed as disease always is by natural laws, springs suddenly into existence, Minerva-like, full-armed *cap-a-pie*, but by slow and gradual processes the citadel of health is taken, rather than by the brilliant feat of a well-directed charge. The changes of nutrition and its perversion either in functional or organic disease is dependent on the integrity of central nervous action, and if this be true, and I firmly believe it to be so, then all diseases, acute or chronic, functional or organic, toxic or micro-organistic, have as their primary origin, derangement of the central nervous system. Every tissue has its representation, area or cell in the brain, and soundness of the brain and its neural ramifications means integrity of the entire body; means life, health and happiness.

Now, the average American of today is a curious creature. All activity, restless, impatient, irritable, fretful, nervous. The great genius he has exhibited in overcoming the many obstructions found in mechanics makes him believe that his own fertile brain will be able to discover the panacea of health and enable him through the ingestion of delectable powders, esthetic looking pills or questionable liquids, to set aside the result of long years of violation of the laws of health. In all seriousness, we must face the situation and realize its true depth and meaning. Stop and consider that every vision, beautiful or repulsive; every sound, divinely harmonious or gratingly discordant; every impression; every pleasure; every pain; every thought, tangible yet intangible, represents the expenditure of so much energy, the destruction of so much tissue, every unit of which must be restored, every atom of which must be replaced. Destruction is rapid, restoration is slow, and if one chronically invalided can be made to realize to the full extent what I have here stated, and can see that restoration and cure depends on the slow and gradual return of normal functionation, then much has been accomplished by way of preparation. The "chronics" have a hard time. They are given tonic after tonic, and changes rung upon them with all the variations of flats and sharps. The delusive phantom of hope, relying on the slender thread of medicinal means alone, is ever in advance, and sooner or later is replaced by a cynicism as virulent as the hope was intense. But how to meet these cases? The patient feels the irritability, the weakness, and instead of being able to realize the dangers of promiscuous drug taking his obstreperous demands are placed temporarily *hors de combat* by some well-directed tonic, sedative or hypnotic.

Do not understand me as belittling the proper use and sphere of medicinal reagents, but to put our sole dependence in chronic disease, on these means, is to simply court failure and bring retribution on our own heads and discredit to our profession. Let us recognize our limitations and be honest with ourselves first and then with our patients. Chronic cases are usually the terror as well as the approbrium of the medical practitioner, and the failure to react to the usual measures has led the profession generally to believe that these cases are incurable. Especially dangerous is routine work. "The greatest study of mankind is man," especially man in his normal state. To know him pathologically we must study homo physiologically and realize that every diseased state is simply the unbalancing of the normal and the result of some cause effective. Routine is rank degeneracy and has made and is making of us a nation of drug takers. What these cases need is radically changed conditions, and that condition so changed as to meet the particular case in hand. The ordinary routine of life, with its worries and the constant repetition of perverted nutritional changes, tends to continue the vicious cycle of disease, and if we propose to restore to its natural equilibrium the chronically diseased human system, we must so change and modify his or her condition as to produce profound and lasting impressions by physiologic excitation of functional activity. No practitioner can so flatter himself that inherent in him are powers to relieve disease, but if he wishes to relieve the sick and suffering he must utilize all therapeutic measures in a persistent and scientific manner. The tactful management of the case is a *sine qua non*.

We must always remember that we are treating the particular patient before us and not the disease. "Chronics" present evidence of the many diseases, co-existing, and the dangers of treating the disease and not the patient, are manifold. Do not treat this or that organ, but treat the case as a whole, meeting all the prominent local requirements by proper additional measures, but in all cases making the local treatment subservient to the general and systematic treatment of the case as a whole, and remembering that at the back of it all is the central nervous system, the proper functionation of which is essential to the establishment of health.

Patient and physician must thoroughly understand one another; the truth must be told kindly but firmly, and the truism "that chronic diseases require chronic treatment," should be instilled into the patient in a proper and honest way, and he or she made to realize that no progress will be made except through the slow and gradual process of changed nutrition. The mind must not be turned out like an old horse, to die, but must be directed into the proper channels of thought, otherwise it may take too great cognizance of its corporeal coadjutor. We should inculcate into the chronic invalid the necessity for the state of calm possessed by the high caste Hindoo, whose soul has passed into the calm waters of knowledge, high above the wear and tear of surging and conflicting passions. Hobbies are necessary. The study of astronomy, with its millions of twinkling lights, mechanics, biology, archeology, architecture, art and literature, offer rich fields from which the tense and discordant vibrations of inharmonious nerves may turn and obtain in interested study or reflection, striking symphonies of peace and rest. Few Americans know the meaning of neural rest and mental calm. The theory is correct and beautiful, but to put it into practical operation requires judgment, knowledge of human nature, and a peculiar personality adapted to the work.

Proper and wholesome inspiration, judicious, sympathetic vibration, and contagious personality enter much into the effectiveness of our efforts. To inculcate calm or cheerfulness, the inculcator must be a living example of his own ideas. Every improvement should be made a text for directing his warped mentality into broad and proper channels. Good literature, judiciously suggested, is a valuable aid, and the comic journals, the short story, where the interest is well maintained, may be made to contribute to the quota. The theater, in both health and disease, is a favorite prescription of mine, for the overworked, the nervous, and the invalid in general. Light opera, comedy and the many interesting society and romantic plays upon the stage today, are to be preferred. Forbid tragedy and melodrama. I am thoroughly satisfied of one thing, and that is that proper and cheerful thoughts flush the brain with bright arterial blood, increase functionation and hasten nutrition, and at the risk of being prolix I will venture to again call your attention to the fact that as we better the brain function we better our patients mentally and physically. The converse is true that evil thoughts, depressing emotions, all produce profound retrograde processes. To teach a patient the philosophy of life, its aims and possibilities, is a mission whose work is never done, and whose power for good is limited only by our opportunities. For the benefit of the corporeal and physiologic side of our patients, we should lay down the laws of hygiene, regulate the patient's life and habits, and insist on the performance of these as a duty. Even when the sufferer returns to the ordinary avocations of life, to daily labor, to hourly care, these suggestions, these laws must be the rudder and the compass by which he steers his fragile bark of life through the turbulent waves of existence, into the smooth and placid waters of health and happiness. To arrive at a logical conclusion, a proper promise is essential; to arrive at a proper therapy, a proper preliminary investigation is necessary. A thorough and carefully written record for present and future reference should be made, grouping symptoms under well defined headings, followed by an inquiry, oral and physical, into the status, past and present, of the various organs *seriatim*.

There is probably no field more neglected by the clinician than the proper and exhaustive examination of the secretions, not alone for diagnosis, but for the elimination or confirmation of suspected organic disease. They point out indisputably the true line of therapeutics. The urine should be most carefully examined and re-examined, chemically, microscopically and by the method of Haig, for the relation of uric acid to urea.

The hemic function has been sadly neglected. The quantitative estimation of the hemoglobin, counting the corpuscles white and red, and properly differentiating them, by means of the Ehrlich stain, will reward the investigator for his time and trouble. Even the examination of the blood by the microscope alone will frequently put new dresses on old facts.

The stomach needs careful consideration. Accurate knowledge concerning the viscus is required, and to this end a proper test-meal should be given, the contents removed at the proper time for thorough and scientific consideration. This method of removal is practically devoid of danger, and the discomfort of its use can be reduced to a minimum. In the examination of the juice removed, macroscopic and microscopic inquiry should be first performed. The average examination of the gastric contents I do not consider to be of much value, but a quantitative analysis after the accurate methods of Hayem and Winter, furnish a basis for rational and scientific therapy.

Much information can be obtained from an examination of the muscular state by means of the dynamometer. The whole may be summed up in the statement that we can not know too much about our patients and their condition, and when once we have mastered every detail of our case we are in the best possible position to scientifically administer any remedial measure. The therapeutic field is vast. No one remedy possesses any particular potency to relieve the case, except in rare instances, and it must be by a judicious and rational combination of all measures that success is obtained. A careful dietary must be arranged based upon the result of our analytic work, the idiosyncrasies and peculiar symptoms of our patients and the actual physical condition present in the viscus.

Now, having placed our patient under the most favorable of circumstances, we are ready to apply a number of remedies, medicinal and mechanical. Limited time prevents more than the most general considerations of the subjects mentioned. In the cases herewith appended, detailed consideration of their action will be entered into in explanation of the results obtained. The vast power for good, resident in the great mechanical treatments, when carefully applied, result largely through their capacity to influence nutrition, stimulate the vasomotor tone, increase nerve action and favor elimination. In the hands of the tyro they are as potent for evil as for good, being no exception to the universal rule bearing on such conditions. Other discouraging features attend failures by the unskilful, for lack of confidence is brought about, not only in the physician himself, but in the methods used. There is one cardinal feature that I can not too strongly insist on, and that is the necessity for the persistent, patient and painstaking following-out of the treatment. Ephemeral results after a few weeks of treatment may be observed, but real decided improvement, permanent in effect, can only be obtained by the slow and gradual changes, brought about by better nutrition and improved nerve force. Time itself, rest, vacations, change of air and scene, are, in my opinion, useless in the therapy of chronic disease, but as a "top-off" to the proper therapy, they become valuable aids. I have observed some rather curious facts in regard to the progress of these cases. Nearly all feel worse and appear worse, during the early stages of treatment—a fact very depressing to the patient, and initiating a period when it requires all his will-power and confidence to bridge him over. I believe this to be due to a species of intoxication, caused by the presence of toxic and metabolic products of retrograde tissue metamorphosis circulating in the blood, irritating and depressing the cerebrospinal system, interfering with active functionation, preventing proper oxidation, and taxing the eliminative organs to their utmost. Free relief through the cloaca maxima, by means of a mercurial, may hasten matters considerably and afford temporary relief.

Another curious fact: So often have patients complained of certain symptoms appearing during recovery that were present in the first stages, that I have been forced to ask myself if chronic disease returns

to the normal over the same road it traveled during its downward course?

We can not antidote disease; we can not crush it out, but can relieve it through a proper stimulation along physical lines of the *vis medicatrix naturæ*, and why should not the natural forces reascend the hill of health in the reverse order in which they have been so long descending? The laws of nature are truly fearful, and wonderfully active, and the greatest laurels await him who masters the incalculable intricacies of cellular nutrition and activity.

Turning to the practical means, by which the longed for desideratum may be obtained, many medicinal reagents are presented for our consideration of which but few are of the slightest permanent advantage. Medicines, as a rule, are of little value in chronic ailments, and should be prescribed usually for some definite temporary need or to supplement some other method of cure. The medicinal field is too limited to receive much consideration. The laxatives are by far the most useful of all the drugs for temporary effect. Next, I would rank nux, strychnia, bromids, iron, quinin, iodids and mercury. They help some, but only a little. The delusive "tonic" when given alone has cast more discredit on medicine than all the other classes of drugs combined. We must realize our limitations and regulate our practice accordingly.

Massage and mechanical vibration.—Manual massage has proved of great value in selected cases, and especially when used in the Weir Mitchell treatment amplified by hydriatic measures of a stimulating variety. Its application requires a technique, very considerable knowledge of anatomy and physiology, a certain amount of pathology, an infinite amount of tact and good sense. Ordinary rubbers are worse than useless. I have been very much astonished at the frequent use of general massage (?) so-called immediately after hydrotherapeutic measures, and believe that some of the discredit that has been reflected upon this great measure, has been due to this irregular and pernicious practice by ignorant and unskilful bath attendants. Its action is far reaching. Muscular fatigue is relieved, the motor and muscular function by pressure and stretching is stimulated and, by its local action, congestion and inflammatory deposits are removed. By the combination of massage, (rubbing) and petrisage (kneading) the veins and lymph channels are emptied, and the action of the heart not only accelerated but bettered. Abdominal massage reduces the heart beat, increases the appetite, removes flatus and residue in the intestine, and overcomes constipation. The general effects obtained are through the stimulation to the circulation, the increased elimination of toxic products, better appetite and digestion, greater assimilation, heightening of the blood-forming functions, and increased nutritional changes.

Mechanical vibration in its general effect resembles massage, but I am constrained to believe that, after seven years constant use of both, its effects are more far-reaching and permanent than those of manual massage, though each possesses some advantage in particular cases. This I believe to be due to a natural tendency of all matter to vibrate, and vibration so applied acts more along natural and normal lines than massage. Mechanical vibration, commonly called mechanical massage, is applied through the intervention of specially designed machinery and instruments run by means of power at a certain rate of speed. The influence it exerts is most profound, and the results are similar to those of manual massage, but more permanent.

Hydrotherapy.—I must preface my remarks on this agent by an apology for their superficiality. My constantly growing experience in its use, has shown me, that this agent is one by means of which results can be obtained so astonishing to the ordinary observer as to shake his belief in the question of incurability of disease. No case must be pronounced incurable until proper and scientific hydriatic measures have been tried. In its wide rage of temperature variation, with the ability to regulate the force of its impingement upon the surface, in its potent power to influence the peripheral blood vessels and nerve terminations, in its wonderful and transferred effects upon brain, cord and viscera, in its eliminative, hemogenetic power, in its capacity to increase assimilation and change perverted nutrition it stands abreast with, and equal to, any mode of therapeutics known to mankind. Perverted function, sluggish circulation, poor elimination, deficient excretion are corrected and improved through its careful and systematic application. This treatment, like all others, should be prescribed by the physician alone, due care and regard being paid to the mode of treatment, the temperature and its proper changes, pressure, duration, preparatory arrangements and the final accessories. That nervous excitement and perturbation is allayed, that tissue metamorphosis is hastened, that increased absorption of oxygen and elimination of carbon dioxid takes place, that exhilaration and increased muscular power are present, is a daily observation. When due care is exercised in its application, we may expect far-reaching and permanent results.

Electrotherapy.—This agent has reached a well recognized place in medical therapeutics at the present time which the preceding mechanical treatments have not succeeded in doing. But a few years only will elapse before recognition will be given to them. Many of the most intelligent practitioners of the present day use the electric current, realize its value, and know the practical results obtained by its application. The constantly increasing activity along this line of work has of late years added much to our armamentarium of valuable and interesting means for the relief of disease. These four great mechanical methods, together with a rational and careful application of hygienic laws, supplemented by the temporary use of medicinal remedies constitute the means of him who seeks a class of patients usually hopeless and pessimistic in their regard for the profession and its capabilities. If success would crown our efforts, it must be in the intelligent use, not of any single line of therapy, but all. Patients do not, as a rule, appreciate the value of these remedial measures, are prone to demand too much and expect wonderful returns in a short time.

Foreign Bodies in the Ears.—Schuh extracts a foreign body by fastening a small piece of sealing-wax in the end of the galvanocautery loop twisted spirally to hold it. It is then inserted in the ear and, as it comes in contact with the foreign body, the current is turned on for a moment, which softens the wax and it adheres to the foreign body, the current turned on another moment if necessary. It is then left undisturbed to cool and harden, when the foreign body is drawn out with it. To extract a glass bead the wire is dipped a moment in melted sealing-wax and then inserted in the hole in the bead. He considers a mixture of equal parts colophony, white wax and sealing-wax better than the latter alone.—*La Revue Méd.*, March 23.

THE X-RAY FROM A MEDICO-LEGAL STANDPOINT.

Read before the Fourth Annual Meeting of the American Academy of Railway Surgeons, held at Chicago, Oct. 6-8, 1897.

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The proper relation which the X-ray should hold in medico-legal medicine has not yet been determined.

When the announcement was made of the discovery of the Röntgen ray, it was given a wider scope of usefulness than clinical experience has yet been able to demonstrate. It is not my object to find fault with the skiagraph or cast any reflections upon the benefits which humanity has or may derive from its use, yet I feel from the experience of myself and others that it has not reached a degree of certainty that warrants us to depend upon it as a safe and positive method of diagnosis.

In ordinary photography, in which a photograph is taken of the real object itself, the position, the light, the focus and many other auxiliaries may greatly modify the photograph taken of the same person on the same day with the same apparatus, in the same gallery. But when we consider that an X-ray is not a photograph of an object, but is believed to be only a photograph of its shadow, we can readily understand the additional complications which prevent the possibility of getting a true and accurate picture of the object as it really exists.

That the X-ray has been beneficial and will become more so in the future is not disputed. The object of this paper is to consider and so far as possible determine its true medico-legal value. I am quite sure that neither the medical nor the legal profession desire to admit as final evidence anything which is surrounded with a halo of uncertainty. For this reason the courts have very justly decided that the witness must tell what he knows in regard to any particular case and not what somebody has told him. If it is deemed proper to apply this rule to the witness there should be equal caution about admitting testimony in the form of an X-ray which is believed to be nothing more than the photograph of the shadow of an object and not even the photograph of the object itself.

As has been well said by Professor DaCosta: "The X-rays are not electricity, though generated by electricity. They are not light, though possessed of some of the powers of light. They are not cathodal rays, although they take origin from the wall of the tube where the cathode rays fall. No man knows what these rays are, but we are getting a clear comprehension as to what they can do." He also says, "great discoveries suddenly made are rare in medical history. The chain is forged but very slowly, and many a one has swung the sledge of thought to complete a single link. Several times in the history of our science, a startling discovery has sprung from the brain of genius, a discovery unheralded, unlooked for, and complete as Minerva when she came from the brain of Jove. We at once recall as belonging to this species, the discovery of the circulation by Harvey, the application of the ligature by Paré, the discovery of anesthesia by Morton, the introduction of vaccination by Jenner and the construction of the germ theory by Pasteur. To this short list must be added the discovery made in the Bavarian University of Würzburg by Professor Röntgen in October, 1895, and made public Dec. 5, 1895, in a paper notable not only for its profound learning, scientific accuracy and logical force but also for its genuine and beautiful modesty." . . . "This discovery is something startling and unique. It is a pathway blazed through a jungle which hitherto no one even thought of entering. It annihilates notions which have come down to us through all the centuries of time. It overturns with revolutionary thoroughness what were but yesterday the plainest axioms of physics. Much has been learned of this newly-recognized force, and much is left to be learned. The pathway has been blazed, but there are yet dragons to conquer, there are yet giants to slay."

One of these giants that is yet to be slain, is how to determine accurately the exact location of a foreign body in the humon economy. From a surgical as well as a medico-legal standpoint it is of the highest importance that we not only know there is a foreign body, but we must know its exact position in the majority of cases, in order that an operation, if such is necessary for its removal may be successful, or to determine if the foreign body will continue to be a permanent injury to the patient. Before the Röntgen ray should be admitted to the courts as a reliable source of evidence these conditions should be overcome by better apparatus, and more careful study of its use, as well as the position of the patient, in our attempts to locate not only a foreign body but a fracture or a callus, the result of a fracture.

It is comparatively easy to locate a fracture or a foreign body in the hands or feet and the responsibility in such cases, both from a surgical and medico-legal standpoint, is as light as it is easy. On the contrary, when it is necessary to locate the exact position of a bullet in the brain, or a foreign body in the abdominal or thoracic cavity, the difficulty is increased, and the responsibility of the rathiographer as well as the surgeon, not considering the danger to the patients, is very greatly enhanced. I recall a case in which a man had accidentally shot himself in the forehead. A few months later he was seized with epileptic convulsions. He was taken to an expert radiographist, whose apparatus is of the best quality, and yet he failed to locate the bullet which, on operation by the writer, was found to be imbedded in the skull, having displaced a portion of the cranium equal to the size of the bullet and forced it through the dura mater, while the bullet itself occupied the perforation made in the skull, and yet, all attempts to locate this bullet, which lay between the periosteum and the dura mater, was absolutely futile, but the facts showed that the bullet was there and the clinical condition demonstrated sufficient irritation to produce epileptic convulsions. Here is a case, which if circumstances had brought it into court, and the X-ray had been admitted as testimony, the evidence would have been far from being "the truth, the whole truth and nothing but the truth."

At the recent meeting of the AMERICAN MEDICAL ASSOCIATION, held in Philadelphia, it was my pleasure to listen to a paper, presented to the Section on Sur-

[1] Since preparing and reading this paper the author has removed from Columbus, Ohio, to Rock Springs, Wyo., and assumed the duties of Superintendent and Surgeon-in-Charge of the Wyoming General Hospital, Assistant Surgeon of the U. P. R. R. Co., and Surgeon-General of Wyoming, etc., etc.

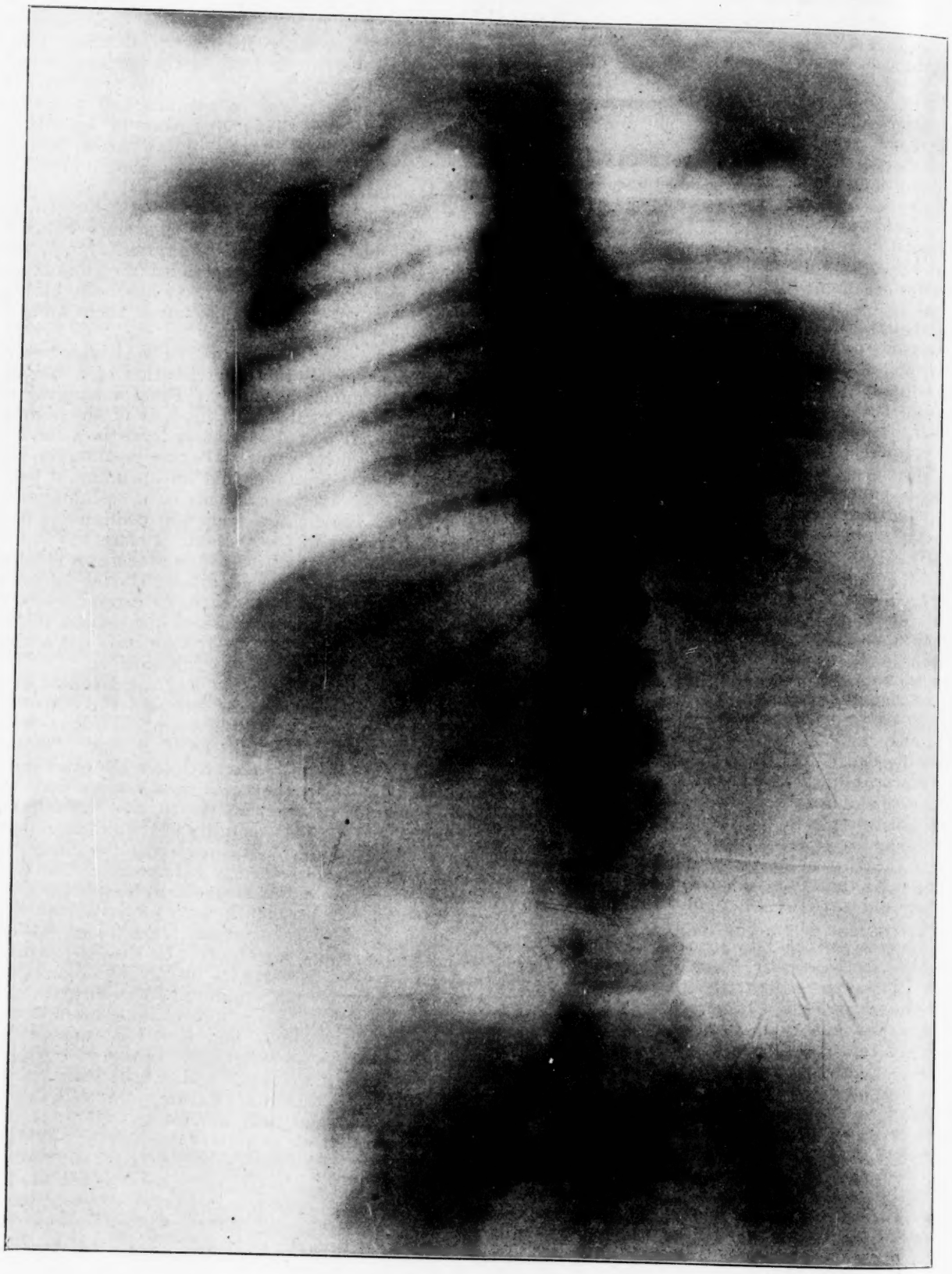

FIGURE 1.

FIGURE 2.

FIGURE 3.

gery and Anatomy, on the "Röntgen Ray Skiagraphy," by DeForest Willard, M.D., of Philadelphia, which was illustrated by numerous skiagraphs of normal and abnormal structures. In this paper he said: "Although skiagraphy is a most valuable assistant to the surgeon, yet a word of caution is necessary. It has been most conclusively shown that the position of the tube, the direction of the rays, the method and time of the exposure, the magnification of portions of an object not in contact with the plate, the elongations of shadows from distant portions of an object together with other varied conditions, may so completely distort the resultant image, that error is certainly possible. A fracture may appear to exist when a bone has not been broken; and, on the other hand, it has been shown that a known fracture produced by osteotomy is not discoverable. These facts make it imperative that the medico-legal value of these radiographs should be considered carefully, and pictorial evidence should receive only its due amount of consideration in connection with clinical evidence. Clinical evidence should have and does have, large weight in the question as to results after fracture and other injury. Knowledge obtained by long experience and positive indications is far more valuable than any representation visible alone to the eye."

In this connection, in our efforts to make an accessible pathway of the blazed trail which has already been referred to by Dr. DaCosta, I call your attention to the accompanying skiagraph. (Fig. 1) which was recently taken by Professor Early of Columbus, Ohio.

Case 1.—A child, 2½ years of age, July 18, 1897, swallowed a shawl pin some two and one fourth inches in length, the diameter of the head of which was one-fourth of an inch and the longitudinal diameter three sixteenths of an inch. It was under the care of competent physicians until September 3, when it was brought to Columbus, where the skiagraph referred to was taken. This showed that the head of the pin lay just above the sixth rib. The point of the pin extended upward to a point between the second and third ribs, and apparently in front of the vertebra. An analysis of this case would show that it was impossible for this foreign body to have passed down the trachea and be located in either of the large bronchi and at the same be at this particular point. In addition to this there was no respiratory interference that would of necessity exist were this pin imbedded in the lung.

General emaciation and interference with the digestive tract, together with this skiagraph, led us to believe that the pin had been swallowed and in some way had become lodged in the esophagus, and as a result we determined to make a gastrotomy in the hopes that we could remove it.

Sept. 4, 1897, the stomach was opened at a point near its juncture with the esophagus. I passed my finger through the lumen of the esophagus up to the fourth rib and found it entirely free from any foreign body, but discovered a fluctuating mass a little to the left of it and the vertebral column, which on pressure, ruptured into the esophagus. A large quantity of pus escaped into the stomach and was discharged through the mouth, and for a time threatened the life of the child from strangulation. After having thoroughly washed out the stomach and esophagus and having cleansed the throat and mouth, a steel sound was passed from the opening in the stomach to the pharynx without the least difficulty, but I failed to detect the presence of any metallic substance. This was removed and a No. 18 soft catheter was passed from the mouth to the stomach with the same results.

In this exploration it was quite easy to pass the finger underneath the heart, along the abdominal aorta and feel their pulsation distinctly, and also feel the vertebra, but we were unable to find the pin and abandoned further search for the time being. There were several reasons for doing so; 1, we were disappointed in not finding the pin in the esophagus, where we were led to believe, from one version of the history of the case and the X-rays, it was located; 2, because from another version of the case there was a question as to whether the child had swallowed a pin, as the evidence in that connection was circumstantial; 3, that possibly the evacuation of the abscess would give relief, especially if the latter theory of the history of the case were true. No one saw the child swallow the pin, but its mother knew it had taken a pin from her clothing, had gone to its grandfather and in a few minutes later began coughing. The pin could not be found and the conclusion was naturally arrived at that it had swallowed it.

The gastric and abdominal wounds were closed with pyoktanin catgut sutures, both of which healed by first intention, and on the fifth day the child was taking nourishment by the stomach without difficulty. The irritation, however, continued, resulting in a rise of temperature and paroxysms of coughing, which after the operation were frequently followed by a discharge of pus, indicating the continued presence of an abscess, which would evidently fill up, making pressure upon the nerves thus inducing these paroxysms, which were temporarily relieved by the discharge of the pus.

The child was again taken to Professor Early, placed under an anesthetic and examined carefully with the fluoroscope in addition to taking skiagraphs antero-posteriorly and laterally. At this time the X-ray examination showed that the head of the pin was just below and a little to the left of the superior margin of the manubrium and the point of the pin high up in the trachea.

The child was losing strength rapidly, and unless relief could be obtained by operative interference, it would succumb in a short time, as it came near strangling several times from the discharge of pus. Sept. 4, 1897, it was decided to make a laryngotomy and if possible remove the pin which, judging by the radiograph, was now believed to be in the trachea. The child was placed under an anesthetic and an incision made through the skin, when the child coughed and a gush of pus from the mouth followed and it was drowned on the operating table by the pus, which in spite of all our efforts was inhaled into the lungs to such an extent as to produce asphyxia. The operation was now converted into a postmortem which revealed the point of the pin protruding obliquely into the trachea about one-fourth of an inch, just at the bifurcation of the bronchi, while the body of the pin passed underneath the esophagus and the head of the pin was located between the fourth and fifth ribs close to the spinal vertebræ, immediately underneath the heart. The pin was very much corroded and required considerable force to remove it from its moorings, thus convincing me that it had not changed its position, but the apparent change was due to an optical illusion which I am unable to explain.

The abscess cavity which was large enough to contain nearly two ounces of pus, opened into the esophagus at a point near the juncture of the vertebra and the fifth rib, and was located just to the left of the vertebra and extended to the inferior margin of the pericardium, which also formed its anterior wall, and upward for a distance of about one and one-half inch, following the connective tissue along the left side of the esophagus. How this pin ever got into this locality remains an open question. The fact that the pin was very much corroded and its removal required no small amount of force with the use of forceps indicates that after the pin had become imbedded it had not changed its position up or down, as indicated by the radiograph, but had remained fixed in its position causing the irritation and infection, followed with suppuration, hectic fever, emaciation and finally death by strangulation fifty-eight days after it had been swallowed.

The lesson to be learned from this case is that the X-rays were not a safe guide to the discovery of this foreign body, and notwithstanding every effort was made by Professor Early, and no time or trouble spared, on his part, to locate the pin accurately, the operation and postmortem demonstrated that while the X-rays showed the presence of the pin, they did not locate it so as to be of any material assistance to the operator.

Case 2.—A target man, in the employ of a railroad in Ohio, was sent to the Protestant Hospital, Columbus, Ohio, Nov. 4, 1896, by the company surgeon for a comminuted fracture which occurred November 2. There was a history of a previous fracture of the tibia of the same leg at about the juncture of the middle and lower third, which had occurred some years before, resulting in about one and one-half inches of shortening. When he arrived at the hospital the temporary dressing was removed and several large blebs were observed at different parts of the limb between the ankle and the middle third, evidently due to impaired nutrition. On further examination it was discovered that there was a comminuted fracture of both bones of the left leg, which were fractured at different points between the ankle and the knee as is shown by the accompanying skiagraph, which was taken by Professor Early. (Fig. 2.)

Owing to the devitalized condition of the soft parts, it made it impossible to use extension as there was extensive sloughing, which necessitated dressing every day, and prohibited the use of dressings which otherwise would have kept the bones nearer their normal position.

An examination of this skiagraph will impress you at once that there had been considerable disturbance of the bony structures of the leg, and yet it shows that the general alignment of the limb was good, which was the fact, but owing to the causes above referred to, the bones could not be held in place, nevertheless recovery took place with but three and one-half inches of shortening, or in other words, two inches shorter than it was prior to his last accident. The general appearance of the limb was fairly good. The man is working every day, wears a brace and a shoe with a thick sole, and gets along remarkably well.

If this radiograph should be taken into court and submitted to a jury, without taking into consideration the facts in the case, it would certainly be very misleading and would indicate a much worse condition of the limb than the clinical facts in the case would warrant. This shows seven distinct fractures of the bone and yet, with all that, we have only two inches more shortening than existed in a previous fracture of the same limb.

Case 3.—In this patient (Fig. 3), there was a fracture of the tibia at about the middle of the lower third, and a fracture of the fibula at the upper part of the upper third, with a sliver of bone broken off the tibia at or near the point of fracture. This sliver could be freely moved up or down, and though the radiograph fails to show its presence, it undoubtedly existed, and notwithstanding we had two oblique fractures, this patient got well with less than an inch of shortening, but if we were guided by this skiagraph we might think that the adjustment of these bones were not as perfect as it might have been, and that there was a deformity of considerable magnitude. On the contrary, the man was young and healthy, with no injury of the soft parts, and we were enabled to put on extension and counter extension, which was followed by a plaster-of-paris cast after the edema had subsided, and almost a perfect result was obtained as far as the clinical features of the case were concerned.

I might multiply these cases, and no doubt many of you could add similar experiences where the radiograph has failed to convey to the eye the real condition of the injured part, and for this reason we question the propriety of bringing it into court until, by further experience, experimentation and improvements it can be made more accurate in its results.

The fluorometer, which has recently come to our notice, may prove to be a valuable aid in this direction, but so long as it is possible to take radiographs of a normal limb, which give the appearance of being fractured, and on the other hand, when skiagraphs are taken of fractured limbs that fail to show the existence of the fracture, we are compelled by force of circumstances to distrust its accuracy, and for that reason if for no other, we consider it a dangerous source of evidence which should not as yet be admitted by our courts.

In closing this paper we can find no better expression of our thoughts than that contained in an editorial published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION July, 1897, which says, "failure of identification of these skiagraphs would destroy their legal value theoretically, but they would be none the less without effect upon the minds of the jury to whom they had been exhibited. If the X-ray is to play any part in medical jurisprudence it must be subject to the time-honored rules of evidence, which centuries of the English common law have shown to be best adapted to secure the rights of the individual."

DISCUSSION.

Dr. W. W. GRANT of Denver—This paper addresses itself to us, first, in a scientific sense, and second, in its practical relation to us as surgeons, and in order to properly appreciate its significance we should first understand explicitly what the law requires of us as surgeons. I have investigated what the law requires and I believe the X-ray may be used just as readily against as for the surgeon. First, unless the surgeon in treating a patient in a case of malpractice, can show that he has treated him in accordance with that experience which is embodied in the ordinary text-books of his profession, and the patient is dissatisfied, he is liable in pecuniary damages to his patient. If he should accept the teaching of the X-ray in any case and his results were not satisfactory, he would be liable for damages. The X-ray can be made a dangerous instrument as well as an aid to the surgeon, and if the profession treats it as it usually does everything new it will prove an instrument of danger. It will be an expensive thing for the surgeon. The X-ray is a greater aid to the surgeon in the location of foreign bodies than it is in pathology; it does not show us in the course of the reparative process of bone what the stage of that process is. It will show any bone not covered heavily by muscle, and whether it is displaced, probably, yet there are errors in that. It does not show beyond the temporary bone that is thrown out in the repair of fractures and in the pathologic lesions of bones. No supreme court has yet passed upon the admission of the X ray in evidence. Local courts all over the country are divided on the subject. The more experienced and learned judges hesitate to accept it, and until the lawyers and the courts ask for its introduction as evidence, surgeons should not try to introduce it, and not then unless we know that it is absolutely reliable. It is different from the old photograph, about which long contests were waged in our courts, as to its admission as evidence. Even the photograph of an object, not of the shadow of the object as this is, was not admitted until the photograph itself was verified. That we can never do in the case of the X-ray except by postmortem.

While I am confident that the X-ray will be useful as an aid to diagnosis, we have not yet reached that stage in our knowledge where it can be safely relied upon to the exclusion of that clinical experience, which every trained surgeon has learned before the X-ray was dreamed of, and which will be useful at all times even in opposition to elements which we consider of scientific precision.

Dr. HOWARD J. WILLIAMS of Macon, Ga.—I have had two cases bearing on this subject that I think will be of interest in showing that the X-ray is not really of so much value to us in a surgical way as we have regarded it. The first case was that of a child, 7 years of age, that was brought to me early in April of this year. A horse had stepped on its arm, breaking it at the middle and at the wrist, forming at the lower end a Colles' fracture, the upper a compound fracture. The child was treated by a physician in a country town and he had a bad result. The family, understanding that I had an X-ray apparatus, brought the child to me and I took a photograph of the arm, and from the result I thought there was exuberant callus at the wrist. There was loss of power in both the wrist and hand. I told the parents that I thought it was not the fault of the surgeon and possibly something could be done, and that in my opinion the Colles' fracture was binding the tendons and nerves. I anesthetized the child, cut down on the wrist and found there was no union whatever, no binding of the tendons nor of the nerves. Extending the incision at the wrist I found that there had been not only a compound fracture of the bone, but the nerves and muscles had been destroyed above. In this case was fatty degeneration of the muscles above and contraction of the tendons.

The other case was that of a railroad man who had sustained a compound fracture of his hand. I photographed his hand, and found displacement of the metacarpals. In operating I found that there had been a worse destruction of the soft tissues than there was of the bone, showing that while the radiograph will give us an accurate account of bone conditions, there are also injuries of other tissues that must be counted on anatomically. We could not in either of these cases say that the injuries were due to the bone lesions.

Dr. W. J. MAYO of Rochester, Minn.—Dr. Reed, in the first operation, showed his good surgical sense in his endeavor to remove the pin from below, or the head end, as other things being equal, drawing from the point would endanger piercing important structures, and the head would be an obstacle to the removal.

A somewhat similar case was operated upon by Dr. C. H. Mayo. A loop buckle was swallowed and lodged in the esophagus of a child. It was easy to locate it by bougies at a point behind the sternum. The buckle, which was such as is used at the back of a vest, had two sharp prongs, and might be opened or closed, and if open, in which direction were the prongs? The X-ray showed that it was open and pointed to the left. A right external esophagotomy rather than the com-

mon operation on the left side was made use of, and it was hooked out by the loop. From the left side the prongs would have been forced into important structures, if not preventing its removal.

In the work of Dr. Cross of our city with the X ray, much aid has been given in the operation for removal of foreign bodies by placing a metallic object on certain prominent landmarks and fastening with adhesive straps. The foreign body is noted in relation to these objects in the picture.

In its medico-legal relations it should not be forgotten that the X-ray operator either by wilfulness or negligence in fastening the plate and making the exposure may exaggerate any existing deformity and an unprejudiced artist should be insisted upon. I have less confidence in pathologic X-ray work, such as fractures, but for foreign bodies too much praise can not be bestowed upon it.

Dr. JAMES BURRY of Chicago—I think the X ray should not be considered as a referee in any of these questions. The information given by the X-ray is simply an aid to diagnosis depending on a good many circumstances. If a picture by the X-ray process contradicts all surgical knowledge of other symptoms given by the patient, or that part under consideration, it should not stand against all the other evidence.

I have never seen a fracture shown by the X-ray where none existed. I have read of such instances. I believe a fracture may not be shown by the X-ray when it does exist. I think the X-ray will show callus. If it does nothing else but show the presence of a foreign body, it is a good thing.

I think it is not an exaggeration to say that I have seen 5000 pictures in the last two years, taken to show the surroundings of accidents by ordinary means of photography. These means differ widely. Unless you know how they are taken, the condition of the light, the position of the camera, the intention of the operator, and a great many other circumstances, the photographs are absolutely useless. I think it is so to a greater extent in regard to the X-ray pictures, because less is known about them. The argument that the X-ray is a dangerous process to the surgeon should not stand. If it is a valuable aid it should be used. If it hurts now and then we can not help it. It certainly can not exaggerate as much as we have seen surgeons on the stand exaggerate in suits for malpractice. In a recent case a surgeon testified that he knew there was dislocation of the hip because he had put his thumb from the outside surface of the hip into the acetabulum in a patient that weighed 225 pounds. I never saw the X-ray exaggerate more than that. I think the use of the X-ray should be limited. We can not keep it out of court. Supposing we are all on the defense side, the plaintiff will bring it into court. It should have its proper limitations defined, and no one should think that the X-ray is a referee or is the final arbiter in the matter, but that it can be very useful as an aid. I think it is useful in showing that a good serviceable limb can be obtained with a great deal of deformity, and there are many ways in which it is useful.

Dr. W. L. SMITH of Streator, Ill.—I saw Dr. Burry give a demonstration in 1896 before the Chicago Medical Society. Shortly after this I procured an X-ray apparatus and I have located fully fifty foreign bodies in the arms, legs and feet of men, women and children, and have cut down and removed them with less laceration of tissue than I could have done had I not had the X-ray skiagraphs as a guide.

I have treated thirty-two cases of Colles' fractures since I have adopted the use of the X-ray, without a single untoward result. I have made skiagraphs once a week, and if any deficiencies were found, have corrected them. I am sure this could not have been done without the aid of the X-ray in fractures of the arms and legs. I think if we take a picture at least once a week and redress, if necessary, we will get better results than we otherwise could under any circumstances without the X-ray.

Dr. W. W. GRANT of Denver—The X-ray will have a legitimate place in the practice of surgery, but that place I think is not yet known. Just what that place is in medico-legal practis not today settled. It is chiefly in the location of foreign bodies that the X-ray is of use to surgeons. When we remember that most of the foreign bodies, as lead, are aseptic, the benefits resulting from the X-ray are exaggerated. We remove more bullets on account of the X-ray, yet most of them would not have done any harm if allowed to remain. Unless pressing upon some important nerve or structure, they will be encysted and do no harm. The tendency is to exaggerate everything that is new that has in itself any real intrinsic value.

Dr. W. J. GALBRAITH of Omaha—From the expressions of the Fellows of this Academy, I believe the time has arrived when it is our duty to take some action as regards the use or abuse of the X-ray from a medico-legal standpoint. I have treated a number of Colles' fracture by the aid of the X-ray and have had no trouble. For us to place ourselves in a position to state that it is necessary for the X-ray to assist us in a surgical way is entirely unjust and uncalled for, for we will receive more abuse in times of tribulation from such recommendations than we can ever escape from.

Dr. THOMAS B. LACEY of Council Bluffs, Iowa—The consideration of the radiograph can not go any further than simply as an adjunct. It is very evident from the paper of Dr. Reed that it will not show the presence of foreign bodies in certain parts of the body. I refer to the gun-shot wound of the skull. There it failed to show the presence of any foreign body, though the bullet was imbedded in the brain tissue. We should not place undue reliance upon the X-ray as a means of diagnosis. I saw a skiagraph of a fracture of the leg in which there were seven distinct fragments. If you were to take that skiagraph and show it to the jury, and keep the limb itself out of the way, I have no doubt but that every man on the jury would say that the leg was not well taken care of. If that be true, it seems to me that if a skiagraph were placed before a jury it would injure the case in which the surgeon might be deeply interested. So I feel that the Academy, as well as other associations of this character, should be guarded in pronouncing the X-ray, or skiagraphs, of such vast importance until their actual value is demonstrated.

Dr. CHARLES K. COLE of Helena, Mont.—It would be unwise for us, as a medical body, to propose that the use of this method shall in any sense be the final arbiter in any case. It is useful. It has come to stay and will unquestionably be used hereafter to an extent perhaps which we do not anticipate, but it has no medico-legal aspect at this time. I doubt whether any of the lower courts or the supreme court in any part of the country would take a picture as graphic as that and pass upon a case with reference to the picture only. That depends upon the experience and judgment of the surgeon in charge, or upon the testimony on the other side.

Dr. C. B. KIBLER of Corry, Pa.—The present status pertaining to the use of skiagraphs can be very much likened to that of the medical expert. You can get medical experts for or against for a consideration. I believe skiagraphs today can be produced to misrepresent the true condition of a fractured limb, the different shapes and different positions it might be placed in, and in this way act detrimentally to the interest of the surgeon who might have a case of malpractice in court. None of us know the future possibilities of the X ray. We hope much good will come of it, but for the present we know but little.

Dr. W. L. SMITH of Streator—I recall the case of a man who was shot in the knee and I took five different radiographs before I was able to locate the bullet. I finally located it behind the head of the tibia about an inch and a half deep. I recall also the case of a judge who was shot in a riot in 1893 or 1894. I was unable to locate the bullet in his case. It was supposed to be in the pelvis somewhere.

Dr. JAMES BURRY of Chicago—If the X-ray picture shows clearly a buck-shot in the hand that could not be diagnosticated in any other way, it would be the height of nonsense to say that the buck-shot was not there. The X-ray has its limitations, and I do not believe it is wise to give up a thing because it does not show a certain condition. I have taken a great many pictures that did not show anything that I expected to see of the conditions that were there. On the other hand, I have taken pictures showing conditions that could not be demonstrated or ascertained by other means, so that I think the X-ray is an aid to diagnosis, but that is all anyone can say.

Dr. W. W. GRANT of Denver—I would like to ask a question in reference to the point I suggested as to the use of the X-ray in giving information during the repair of bone, whether from disease or a fracture. I know the statement is very generally made and believed that the X-ray does not show anything but solid bone, that nothing is clearly defined. I have recently had an experience in a case of fracture of the lower end of the humerus, in which I have at different stages taken pictures. These pictures will convince any surgeon that the X-ray is absolutely worthless as showing the degree of repair of bone. I made passive motion of the joint that would have broken up any fracture that was not united, yet the X-ray does not show it. I know there is temporary callus. It has verified what has been stated in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, that the X-ray shows well organized bone and nothing else.

Dr. REED—There is no question in my mind but what the use of the X-ray in general practice is to a certain extent an aid, but the object of my paper was to endeavor to locate what position the X-ray should take from a forensic standpoint. This is a very important question and should be kept separate from

the practical work that we do every day, until we are certain of what is shown by the X-ray. It is true that the X-ray is an aid to diagnosis, but while it may be an aid I believe that up to the present time, if admitted to the courts as evidence, it will do more injustice than justice. In a case I have at present, the man was shot a year ago, at close range, with a thirty-two caliber bullet, which entered immediately above the pubes, missing the pubic bone. He did not feel any harm from it for some time. Some weeks ago it appears that an abscess had formed and had broken into the bladder and there was a profuse discharge of pus from it. In sounding the bladder neither myself nor colleagues were enabled to detect the bullet. There was no escape of urine at the time of the primary injury, and it would have been hardly possible for it to have remained in the bladder without causing any irritation. I suspect that this bullet is located somewhere exterior to the bladder, and that sepsis has taken place, followed by suppuration and rupture into the bladder. I am exceedingly anxious to know what the radiographist will find in this case.

From a picture, such as I have seen taken, it is impossible to tell whether there was a separation of the epiphysis from the body of the bone or not, when the facts were that there was no separation whatever. Suppose in a case of this kind a party wishes to defraud us, and should fall off a car and injure the limb slightly (probably the knee is swollen a little), and should go to a radiographist and have a skiagraph taken and exhibit it in court (although we know the man is not injured in the slightest), and there should be the appearance of separation between the epiphysis and bone, there is only one thing that we could expect the jury to say, and that is, we were mistaken and the radiographist was correct. I feel that while X-ray skiagraphs are of value in our practice, as aids to diagnosis, it is necessary for us to develop the facts better before they should be admitted to the courts as evidence, either by the prosecution or the defense.

CLINICAL SIGNIFICANCE OF THE DIFFERENT FORMS OF THE KLEBS-LOEFFLER BACILLUS.

Read before the North Chicago Medical Society Dec. 23, 1897.

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CHICAGO, ILL.

It is not necessary for me to enter into a detailed description of the bacillus of diphtheria, history of its discovery, growth in different culture media etc.; a few remarks however especially in regard to its morphology will be required in order to present this paper properly. Fraenkel in his work on bacteriology describes the Klebs-Loeffler bacillus as a bacterium, resembling in many respects Fraenkel's diplococcus of pneumonia. According to him, their habitat is in the oldest part of the pseudo-membrane. They are little rods of moderate size, usually slightly bent, about as long as the tubercle bacillus but twice as broad, hence of a rather coarse appearance and usually with rounded ends. But the form of this micro-organism is exceedingly variable, and the differences are striking in appearance. The bacteria are sometimes seen enveloped in a more or less capacious glassy membrane; sometimes the contents separate into several pieces divided by a broad transverse wall; one end of the rod is very frequently thickened like a club; sometimes this change appears on both ends so that there will be dumb-bell shaped structures, usually pointed out as involution forms. The bacilli are immobile, have no spores, perish rather rapidly when dried and succumb at 45 to 50 degrees C. They stain with difficulty, the terminals staining better and therefore standing out as dark spots from the pale center. In recent cases they are usually found associated with streptococci. Martin, in 1892, describes three forms of the Klebs-Loeffler bacillus, as being of comparatively constant occurrence in different cases of diphtheria, namely, long entangled forms, medium sized bacilli arranged parallel and short parallel bacilli. Other authors have made different classifications, which, however, amount to about the same.

The significance of these different morphologic varieties, and the import of the almost constant occurrence of the streptococcus, especially in severe cases, are the chief points to be considered in this paper. E. A. Peters of London, in an article in the *Journal of Pathology and Bacteriology*, claims the long bacillus is the more constantly present and gives rise to a more severe type of the disease than the shorter form, which is of rare occurrence. He does not seem to attach much importance to the streptococci. His examinations, from which he draws these conclusions, were made from bacteria grown on different culture media instead of from slides made directly from the throat. As the size of the bacilli grown on the different culture media varies considerably, those grown on blood serum being larger than those grown on agar-agar. I do not consider his statistics quite reliable. On the other hand, Cornil and Babes in their text-book describe a long pseudo-bacillus, which occurs in mild cases and is considered, by them, to be an involution form of the true Klebs-Loeffler bacillus. Jacques of Chicago, in an article read before the Chicago Medical Society, makes the following statement; "In the early autumn the bacilli are small, producing a small amount of membrane and involving the cervical glands; little or no temperature and great malignancy causing the patient to be stupid as if under the influence of a strong narcotic. As the winter progressed this type changed. The bacilli became larger, more membrane was formed and the type was pharyngeal, with occasional involvement of the larynx." This statement, in general, agrees with my experience except that I have not noticed any change in the size of the organism as the season advanced, but have found the short bacillus, usually associated with the streptococcus, almost invariably in the severer forms of the disease.

In the cases of which I have kept a record and which I quote, the bacteria I mention were found in the material derived directly from the throat of the patient, a culture being made later in each case to verify the findings.

Case 1.—F. S., aged 3, third day,[1] had extensive membrane in pharynx. No antitoxin was used, death from toxemia fifth day of disease. Short Klebs-Loeffler bacillus and streptococci were found.

Case 2.—C. B., aged 20, fifth day, small amount of membrane in pharynx, larynx slightly affected, severe general intoxication, 5500 units antitoxin used, recovery. Short Klebs-Loeffler bacillus and streptococci were found.

Case 3.—A. M., aged 2, third day, small amount of membrane in pharynx, larynx, trachea and probably also in bronchi. Intubation was done without affording relief, 2000 units antitoxin used, death same day. Short Klebs-Loeffler bacilli and streptococci were found.

Case 4.—G. F., aged 8, second day, membrane in pharynx and tonsils, constitutional symptoms moderate, 1500 units antitoxin used, recovery. Typical Klebs-Loeffler bacilli and staphylococci were found.

Case 5.—E. C., aged 15, second day, small amount of membrane on tonsil and uvula, 2700 units antitoxin used, constitutional symptoms mild, recovery. Strepto- and staphylococci were found.

Case 6.—C. P., aged 9, third day, small amount of membrane in pharynx, constitutional symptoms moderate, 1700 units antitoxin used, recovery. Typical Klebs-Loeffler bacilli were found.

Case 7.—R. P., aged 8, fifth day, extensive membrane on

[1] In these cases the day referred to means the one on which first examination was made. The symptoms are those observed during entire course of the disease.

tonsils and uvula, constitutional symptoms of moderate severity, 2000 units antitoxin used, recovery. Typical Klebs-Loeffler bacilli and streptococci were found.

Case 8.—C. S., aged 3 years, six months, fifth day, involvement of larynx and pharynx, constitutional symptoms severe, 1500 units antitoxin used, recovery. Short Klebs-Loeffler bacilli and streptococci were found.

Case 9.—A. C., aged 3, fifth day, laryngeal type with severe general symptoms, 3000 units antitoxin used. Short Klebs-Loeffler bacilli and streptococci were found.

Case 10.—F. N., aged 8, second day, laryngeal type, pharynx only reddened, constitutional symptoms of moderate severity, 1000 units antitoxin used, recovery. Typical Klebs-Loeffler bacilli and streptococci were found.

Case 11.—H. B., aged 13, second day, small amount of membrane on tonsils, general symptoms mild. Long Klebs-Loeffler bacilli were found.

Case 12.—A. H., aged 6, third day, small amount of membrane in pharynx, general symptoms of moderate severity, 2000 units antitoxin used, recovery. Long Klebs-Loeffler bacilli were found.

Case 13.—K. L., aged 6, second day, small amount of membrane in tonsils, general symptoms mild, 1000 units antitoxin used, recovery. Streptococci and micrococus tetragenus were found.

Case 14.—J. M., aged 8, second day, extensive membrane in pharynx and tonsils, constitutional symptoms moderate, 2500 units antinoxin used, recovery. Typical Klebs-Loeffler bacilli were found.

Case 15.—L. M., aged 12, second day, slight amount of membrane on tonsils, general symptoms mild, 1500 units antitoxin used, recovery. Long Klebs-Loeffler bacilli were found.

Case 16.—A. N., aged 5, second day, small amount of membrane in pharynx, general symptoms mild, 1500 units antitoxin used, recovery. Long Klebs-Loeffler bacilli were found.

Case 17.—G. L., aged 4, fourth day, extensive membrane in pharynx, constitutional symptoms of moderate severity, 1000 units antitoxin used, recovery. Typical Klebs-Loeffler bacilli were found.

Case 18.—P. L., aged 5, second day, extensive membrane in pharynx, constitutional symptoms of moderate severity, 1000 units antitoxin used, recovery. Typical Klebs-Loeffler bacilli were found.

Case 19.—A. L., aged 1, first day, redness and white spots on tonsils, constitutional symptoms of moderate severity, 500 units antitoxin used, recovery. Typical Klebs Loeffler bacilli were found.

Case 20.—E. D., aged 12, second day, fairly extensive membrane in pharynx, constitutional symptoms of moderate severity, 1500 units antitoxin used, recovery. Typical Klebs-Loeffler bacilli and streptococci were found.

Case 21.—S. D., aged 8, first day, redness and few white spots in pharynx, general symptoms of moderate severity, 750 units antitoxtin used, recovery. Typical Klebs-Loeffler bacilli and streptococci were found.

Case 22.—G. P., aged 8, fifth day, extensive membrane in pharynx, general symptoms severe. 2000 units antitoxin used, recovery. Short Klebs Loeffler bacilli and streptococci were found.

Case 23.—H. B., aged 4, first day, redness of tonsils and pharynx, general symptoms mild, 1000 units antitoxin used, recovery. Long Klebs-Loeffler bacilli were found.

Case 24.—M. K., aged 17, second day, moderate amount of membrane on tonsils, constitutional symptoms moderate in severity, 1500 units antitoxin used, recovery. Long Klebs-Loeffler bacilli were found.

Case 25.—R. L., aged 5, third day, moderate amount of membrane in pharynx, constitutional symptoms severe, 2000 units antitoxin used, recovery. Short Klebs Loeffler bacilli and streptococci were found.

Case 26.—M. R., aged 4, second day, small white patches on tonsils and uvula, general symptoms mild, 500 units antitoxin used, recovery. Pseudo Klebs-Loeffler bacilli were found.

Case 27.—G. C., aged 10, third day, extensive membrane in pharynx, constitutional symptoms of moderate severity, 1500 units antitoxin used, recovery. Typical Klebs-Loeffler bacilli and streptococci were found.

To sum up: We have seven cases with severe constitutional symptoms, with two deaths; in all of these the short Klebs-Loeffler bacillus and streptococci were found; thirteen cases in which the constitutional symptoms were not so marked, but the membrane was, as a rule, thicker and more extensive; in six of these typical Klebs-Loeffler bacilli were found alone, in five they were associated with streptococci, and in one each are found typical Klebs-Loeffler bacilli with staphylococci and long Klebs-Loeffler bacilli, respectively. In the remaining seven cases the constitutional symptoms were mild or entirely absent; of these, four showed the presence of the long Klebs-Loeffler bacillus alone, and, in one each, streptococci and staphylococci; streptococci and micrococci tetrageni, and pseudo Klebs-Loeffler bacilli were found.

As the result of these examinations I have arrived at the following conclusions:

1. That the short Klebs-Loeffler bacillus apparently produces a toxin of greater virulency than the longer forms, although the local manifestations may not be so extensive.

2. That the long Klebs-Loeffler bacillus and the streptococci when found alone give rise to a mild type of the disease.

3. That the streptococcus is found associated with the Klebs-Loeffler bacillus in most of the severe cases. Its special significance is not so clear, but it is possible that by causing a more intense inflammatory reaction it opens avenues by which the toxins of the Klebs-Loeffler bacillus may find more ready entrance into the circulation, plus its own toxin.

4. That the apparent beneficial action of the antitoxin of the Klebs-Loeffler bacillus in cases where this bacillus is not present, may be due to the fact that though the local action of the different microbes varies to a considerable extent, the action of their toxins, as is shown by the similarity of the constitutional symptoms produced by them, present many kindred features. The thought, therefore, arises that the antitoxin of one infection may have an inhibitory effect on the toxin of another, as is shown by the fact that whooping cough and some other infectious diseases have been shown to occur less frequently in vaccinated persons and some cases have, apparently, been cured by vaccination.

NOTE.—By the term typical Klebs-Loeffler bacillus is meant the medium sized bacillus as described by Martin.

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TETANUS; ANTI-TETANIC SERUM; REPORT OF CASE.

Read before the Winona County Medical Society, July 6, 1897.

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Tetanus is a toxic infection dependent on the products of a specific germ. It is spoken of as traumatic when the infection takes place through a recognized wound. In idiopathic tetanus the infection atrium is some unnoted lesion. It is possible that the germs may sometimes find entrance through mucous membranes. Infection after labor gives rise to puerperal tetanus. Trismus neonatorum occurs as a rule through inoculation of the umbilicus. Tetanus cephalicus sometimes results from wounds of the head, the symptoms being limited to this region.

The bacillus of tetanus was first described by Nicolaier, in 1884. He obtained it from wounds and from the soil. Five years later Kitasato secured it in pure

ulture. The germ itself is not tenacious of life. It s strictly anaerobic, oxygen preventing its growth. Under favorable conditions spores form in one end of he rod-like germs, giving them a characteristic drumstick shape. The spores are very resistant to destructive influences and are widely distributed in the soil, dust, etc. They are the usual source of infection.

It is evident from their common occurrence that the spores must find entrance to many wounds in which they do not develop. Free access of oxygen would prevent this and punctured wounds are, therefore, especially dangerous. Recent experiments in inoculating animals with spores obtained from pure cultures and freed from toxins show that they do not develop unless there be present certain additional factors, such as bruising of the tissues, effusion of blood, or mixed infection with other germs.

The ordinary antiseptic solutions are not effective in destroying the tetanus spores, requiring a contact of several hours, and in general they will not destroy the toxins. Sodic or potassic hydrate in 0.3 to 0.4 per cent. strength are recommended in addition to ordinary antiseptics. Iodin solutions, either 0.5 per cent. iodin trichlorid, or solutions of iodin with potassium iodid are especially effective in destroying both spores and toxins. (Kitasato, cited by Lambert.)

A number of ptomains and a toxalbumin have been obtained from tetanus cultures, but the chemic nature of the real poison has not yet been definitely determined. A concentrated poison has been obtained of such strength that the estimated fatal dose for a man is 0.23 mg., or about 1/250 gr.

The germ, when it develops in the body, multiplies in the vicinity of the point of inoculation, but does not become generally distributed. The blood absorbs the toxic products, which thus reach the nervous system and produce their characteristic effects. The blood of tetanus patients is toxic for animals when injected into the circulation. The toxins have been recovered from the urine. The postmortem findings of various observers differ, but lesions have been noted in the spinal cord; particularly changes in the nerve cells of the motor horns. Pitfield (*Therapeutic Gazette*, March 15, 1897), has employed a weak tetanus toxin therapeutically as a stimulant to the cord, in one case of mixed spinal sclerosis with apparent benefit.

The antitoxin of tetanus was introduced by Tizzoni and Cattani of Bologna. The preparation of this antitoxin is similar to that of diphtheria. Horses are injected with a tetanus toxin obtained by filtering pure cultures of the bacillus. Beginning with a dose of 0.5 c.c., the dose is gradually increased until the animals bear from 700 to 800 c.c. After several months a high immunizing power is thus obtained. The blood is drawn and the serum separated. The serum may be used for injection, or the antitoxin may be precipitated by alcohol and obtained in a dry form to be dissolved for use.

The antitoxin is said to be perfectly satisfactory in the laboratory. A definite quantity absolutely protects animals when given at the same time with the previously determined fatal dose of the toxin. The proportion of antitoxin required for a given toxin may be mathematically determined.

The application of the remedy meets many practical difficulties. There is no means of estimating the amount of toxin in the system and by the time clinical evidence of infection is obtained irreparable damage may have been done by the poison. Again, experimentally the quantity of antitoxin necessary to protect increases rapidly with the length of time elapsing after the injection of the toxin. Behring has estimated that the amount required to save an animal twenty-four hours after giving a fatal dose of the toxin would be impracticable of administration, on account of its bulk. The chances of employing the remedy clinically before the absorption of dangerous quantities of the poison are not nearly so favorable as in diphtheria.

The antitoxin has been employed as a prophylactic both in medical and veterinary practice. Its use is reported in a considerable number of cases in localities where tetanus is common. Tetanus failed to develop in all the cases. Of course there is no means of knowing whether infection was present.

The antitoxin acts not by destroying or chemically neutralizing the toxin, but by rendering the system immune to its action.

Lambert (*New York Medical Journal*, June 5, 1897) gives the statistics of 114 cases of tetanus treated by antitoxin, with a mortality of 40.35 per cent. Excluding deaths within twenty-four hours after beginning treatment and deaths from intercurrent disease; excluding also recoveries in mild cases not treated before the tenth day of the disease, leaves seventy-one cases, with a mortality of 29.57 per cent. Of these, thirty-one cases, with an incubation of eight days or less, are classified as acute and give a mortality of 61.29 per cent.; forty cases occurring after a longer period and classed as chronic, give 5 per cent. mortality. For comparison, in a collection of 1502 cases of all sorts treated without antitoxin the mortality was 87.7 per cent. Lambert considers a fairly low estimate of the death rate to be 80 per cent. for acute cases and 40 per cent. for chronic cases. This is certainly a very favorable showing for the antitoxin.

Case.—W. S., aged 23, steamboat hand, alcoholic, attempted to board a moving freight train May 1, 1897. He fell and sustained injuries which necessitated amputation of the ring and little fingers of his right hand. The end of the middle finger was lacerated and received two stitches. A wound of the scalp also required sutures and there was an extensive abrasion of the forehead. He was attended to in the office under ether anesthesia. Alcohol and bichlorid solution (1 to 1000) were freely used in cleansing the wound areas, which were very dirty. Some suppuration developed in the end of the middle finger and in one corner of the stump of the ring finger. The other wounds healed promptly without pus. On May 18 the wounds were last dressed, all being dry and apparently in good condition. Patient was in a state of moderate alcoholic exhilaration on this date. He complained of no unusual symptoms, although his history showed later that such were present at this time.

Three days after this he sent word that he was sick. He was found in bed, complaining of great pain in the abdomen and back. His spinal column was perfectly rigid. His masseters were contracted and the jaws could not be separated over half an inch by force. He received morphin by mouth and was removed two hours later to the Winona General Hospital. He could get out of bed only by turning on his face and dropping his knees to the floor, the stiffness of the back preventing his rising in the ordinary manner. He walked downstairs with great difficulty, the exertion being attended with general clonic spasms.

On admission to the hospital at 4 P.M., his axillary temperature was 99.5, pulse 84, regular. The facial muscles were contracted and prominent, the corners of the mouth somewhat elevated, the masseters rigid. The muscles of the neck, back and abdomen were in a state of tonic contraction. Opisthotonos was not marked. Breathing was shallow. The arms were moved freely, but there was some stiffness of the legs and tremor when they were lifted from the bed. The tongue was heavily coated and the breath foul. He complained mainly of spasmodic pain referred to the epigastrium, and suffered from painful muscular contractions in the throat on swallowing.

His history was gathered from time to time, as talking was difficult. On May 16, five days before admission, he noticed soreness of the jaw-muscles and twitching of the face. On the following day the legs became stiff and jerked at times while walking. The intermittent pain in the epigastrium next appeared. The jaws became stiff and walking was difficult. The day before admission was spent in bed. Patient had been living irregularly and had slept in a barn on one night. He at first supposed symptoms to be the result of taking cold. The wounds all appeared in good condition and offered no evidence as to the site of the tetanic infection, hence no indication for local treatment could be determined.

Patient was placed in a darkened room and 10 c.c. of antitetanic serum was injected in the back with antiseptic precautions. This dose was repeated in four hours and again nine hours. Chloral, in 0.97 gram doses, every four hours, was given at night, and potassium bromid, 1.3 gram every three hours, by day, to secure rest and quiet. A few hypodermics of morphin were used at long intervals for pain. The bowels were freely moved by 0.32 gram of calomel. No difficulty in urination was experienced. Patient was able to swallow liquids with some difficulty. He slept a considerable portion of the time. On awakening or when startled there was jerking of the limbs. The tongue and cheeks were repeatedly bitten by involuntary closure of the jaws. The temperature was 99 in the axilla on the second day, but did not again reach this point.

The symptoms progressively but very gradually improved. By the third day the muscular contraction was noticeably diminished and the pains less severe. A week later he could sit up, and two weeks after admission he left the hospital walking fairly well, though complaining of some stiffness. Since then he has not reported.

After receiving the third dose of serum the pulse was noticed to be extremely intermittent and irregular. Its rate varied at times from 60 to 120 a minute, especially after any exertion. This condition persisted for about a week. There was no evidence of disease of the heart. It seems unlikely that this condition could be produced by the moderate doses of the sedatives used. No local reaction, or skin or joint symptoms followed the use of the serum.

It is not possible to draw any very valuable inferences as to the effect of the serum from a case of this nature. The length of the incubation (fifteen days), and the slow onset of the symptoms place it with the chronic type of tetanus and make the prognosis relatively favorable. It is difficult to say what effect, if any, the serum had on the course of the disease. It is certain that the striking results obtained by some observers were not in evidence. However, the beginning of a gradual improvement at a time when the symptoms were progressively increasing in severity coincided with the injections. It would appear that in an acute case the dosage here employed would be quite inadequate.

DISEASES OF THE MASTOID, THEIR COURSE AND TREATMENT.

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Before beginning the consideration of this paper, I wish to request your attention for a few moments to some of the anatomic features of the middle ear and mastoid.

It is in an air-containing space, lined throughout with mucous membrane, and continuous with the covering of the naso-pharynx and adjacent parts. Its divisions are the eustachian tubes, the tympanic cavity, and the mastoid cells. The first is the channel of connection between the pharynx and the tympanum and consists of two portions, the cartilaginous and osseous, the widest opening being pharyngeal and its narrowest point at the junction of the soft and the bony part. It is from one inch to one and one-third inches long, the osseous forming about one-third of its length, and the two portions are formed at an obtuse angle. Its direction is obliquely outward, backward and slightly upward. The tubal mucous membrane contains throughout a ciliated epithelium destitute of glands, the movements of the cilia being from the tympanic cavity, thus aiding in the drainage of the tympanum, and partially preventing its invasion by pathogenic organisms from the rhino-pharynx.

The tympanic cavity is an irregular pneumatic shaped space with its longest diameters vertical and lateral, containing the ossicula and consists of two portions, the atrium immediately behind the membrana tympani, and the attic which lies above the membrane. The communication between these two is quite narrow owing to the arrangement of the ossicles and folds of mucous membrane, and therefore a slight inflammation and swelling of the tissues may easily shut off the attic space, producing interference with its drainage, this being a serious factor in middle ear pathology. The mucous membrane lining the tympanic cavity is thin and delicate and closely adherent with the underlying bone; its epithelium is usually tesselated, and may in places be ciliated, the latter being found most frequently in the vicinity of the eustachian orifice. A little above, continuous and posterior to the attic, the mastoid antrum is situated, and is the only pneumatic space developed at birth, the others being formed subsequently. Not infrequently a second cell of considerable size is found at the tip of the process. The mastoid process, both externally and internally, varies greatly in its construction; thus, we may have those which are entirely pneumatic, those which are pneumatic and diploetic, those which are wholly diploetic, and, lastly, those which are altogether sclerotic excepting the antrum. Zuckerkandl, in the examination of 250 bones, found 36.8 per cent. completely pneumatic, while 42.8 per cent. were mixed diploetic and pneumatic, and 20.4 per cent. entirely diploetic or composed of dense osseous tissue throughout. These conditions are also found to vary on the two sides, one side being partly pneumatic and the other completely so. From such examinations it is evident that a sclerotic process does occur normally as well as the result of inflammatory action. The position of the lateral sinus varies greatly in different individuals, sometimes being an inch or more posterior to the wall of the meatus, and, again, the bend of the sinus is so sharp that it extends forward so near to the posterior wall of the meatus that the opening of the antrum would be impossible without wounding this venous channel. To the operator the position of the sinus and the middle cerebral fossa is of special importance, and many efforts have been made, by the examination of specimens, measurements of the skull and its outward conformation, to determine the location of the sinus; but all such researches have proven useless. Dr. Politzer states that in about 500 temporal bones which he examined he found the position of the sinus most favorable when the mastoid process was strongly developed, and entirely filled with pneumatic cells. In these cases there is a broad space between the sigmoid sinus and the posterior wall of the external meatus, which, in operating, permits access to the antrum without danger of wounding the sinus. He found the relations less favorable in the diploetic and com-

pact mastoid processes. How are we to know positively whether the process is diploetic or pneumatic? Hence, for practical purposes these investigations prove as useless as others.

We will now consider the individual mastoid diseases.

Primary mastoiditis is very rare, and when it does occur is usually the result of traumatism or exposure, but sometimes without any traceable cause; the latter usually found in persons of a cachetic condition. Only a few cases have been reported.

Secondary periostitis, however, is quite frequent, and is due to acute or chronic middle-ear suppuration or necrosis; the process extending outward from the tympanum until the mastoid covering is reached. It occurs oftener in adult than early life, owing to the much greater liability to ear disease. In acute middle-ear suppuration it is most frequent when free drainage is interfered with, as from a very small perforation badly placed, or from a possible pus retention by blocking up the opening with powders, as boracic acid, alum and some of the more adhesive new products. The fluid must find exit, and will do so at the point of least resistance. This may be: 1, through the external mastoid cortex or into the external meatus; 2, through the digastric fossa; 3, through the roof of the antrum or the tympanic wall into the middle cranial fossa; 4, into the posterior cranial fossa, by rupture usually, into the groove lodging the lateral sinus.

If the cranial cavity is invaded meningitis is induced and may be diffuse or circumscribed. In the latter the limit appears to be caused by the formation of an epidural abscess, the infectious material being walled in all sides by adhesions between the dura and adjacent walls. Internal rupture may occur, or the free anastomosis between the blood vessels and the dura and the pericranium may provide the channel through which the infectious material may pass to the brain, producing an intracranial abscess or a thrombosis of the lateral sinus. Unfortunately these lesions often occur simultaneously, thus greatly increasing the danger to life.

Until within a comparatively recent period, the operation for acute disease of the mastoid was the principal surgical operation upon the ear. It was near the end of the fifteenth century that Piolanus proposed opening the mastoid cells; later, about the year 1655, Sir Thomas Brown advised against such a procedure; and it was not until 100 years later that the operation was first performed by Petit for the removal of secretions. In 1776 Jasser performed the operation for necrosis of the bone with great success, but, after his disease, surgeons lost sight of the true indications for operating, and perforated the bone for various purposes, until the death of Bergen, a noted Danish surgeon, upon whom the operation was performed for the relief of deafness, and ended in fatal meningitis. This caused the procedure to fall into disrepute, and nearly a century elapsed before it was revived by Forget (1849), Pollin and Troeltach (1858).

When there was inflammation, swelling and tenderness over the mastoid, Troeltach made an incision down to the bone to prevent necrosis, and if the symptoms indicated a deeper seat of the disease he perforated the bone with a blunt probe. To prevent injury to the brain or lateral sinus, he placed the instrument on a line with the meatus, and worked it forward and inward in a horizontal plane. If the cortex was thick he used a small trephine. The sinus was kept open by means of a piece of gauze.

To Schwartze is due the credit of developing the operation; by 1883 he had reported 100 cases, which was the largest number reported up to that time.

Acute inflammation of the mastoid cells vary according to the stage in which the patient comes under observation. Acute otitis media without perforation is often accompanied by symptoms of mastoid irritation, which usually subside with slight antiphlogistic measures. In acute inflammation of the mastoid cells the prominent symptoms are, 1, intense continuous pain over the mastoid and radiating over the side of the head and in the neck, which is increased on pressure and percussion, redness, heat and edema of the skin. When the abscess becomes localized the pain generally remains fixed at one point; 2, the membrana tympani appears strongly bulged forward before the pus perforates; following perforation a nipple-like projection is often found in the posterior-superior quadrant of the membrane, on the tip of which the perforation is situated; 3, a swelling and bulging of the posterior-superior wall of the canal, causing a narrowing of its lumen, and shutting from view all or a part of the membrane. These two latter points are very indicative symptoms. Free discharge from the ear exists, which rarely ever ceases while the mastoid inflammation continues. However, the only absolutely positive sign of a mastoid abscess is pus found within its interior on opening. The temperature usually ranges from 99.5 to 103 degrees, but seldom higher.

The course of the affection varies considerably in different cases; in some running to a fatal termination in a few days, and in others occupying weeks and months and possibly years to indicate positive symptoms. In chronic otitis media purulenta the extension to the mastoid is often without characteristic symptoms. The quality and quantity of the discharge varies greatly, now very slight, now copious, according as to whether there is a narrow or free outlet for drainage from attic and antrum. A thickened cheesy pus may exist for a long time in the mastoid cells without any symptoms except a stubborn, fetid otorrhea, resisting cure in spite of thorough cleansing of the tympanic cavity. We may be almost sure of retention of pus in the antrum, provided caries of the external canal, ossicles or walls of the tympanic cavity may be excluded.

Inflammation of the mastoid process and fever only occur through traumatism or the retention of pus in the cells. They may subside only to reappear. Sharp pain on pressure, united with edema, may have existed a long time without producing any perceptible change of periosteum and the bone surface. If the bone is greatly sclerosed and very dense, and the cortex much thickened, which may be congenital or occur as a result of chronic middle-ear suppuration, such acute symptoms may never arise, even in a long course of the disease. However, the absence of the same can not be looked upon favorably as a prognostic sign, for it is often just such cases that prove rapidly fatal through pyemia. Zanfal and others have called attention to the frequent existence of optic neuritis, neuro-retinitis and choked disc, in inflammation of the mastoid process, at times bilateral, at times unilateral, and not always on the affected side. The course of the morbid process in bone affection varies in different cases. Extension of the inflammation in

an outward direction, with periostitis and abscess, is the most common course. Several such abscesses, in more or less rapid succession, over the mastoid process, are indicative of disease of the bone. Occasionally the pus finds it way down the side of the neck, and forms a swelling of considerable size; or, it may pass forward to the side of the pharynx, and downward even as far as the pleura; or, it may extend into the cranial cavity, and cause trouble in the lateral sinus, or involve the Fallopian aqueduct and the membranes of the brain.

Next to opening through the cortex of the mastoid, the most frequent point is through the posterior-superior wall of the external canal. If not recognized early it may cause such excessive bulging of the canal wall as to prevent free discharge. If seen at the proper time a generous opening followed by copious syringing may suffice to empty the mastoid process of all deleterious substances, such as pus, cholesteatoma, the cheesy exudate, epidermic masses, and even sequestra if very small. Bozold has well described those uncommon cases as mentioned above. When rupture takes place toward the digastric groove, or on the median surface of the mastoid process, and owing to its deep position beneath the fascial, the pus easily finds its way into the deep sub-muscular tissues, and along the course of the large vessels, which causes the swelling in the side of the neck with abscess formation. In the early stages no perceptible difference may be seen between the sound and diseased side. After the swelling beneath and each side of the sterno-cleido-mastoid muscle has developed, deep pressure over the tip of the mastoid elicits acute pain. An early recognition of the condition is necessary since from the consolidation of the parts invasion of the cranial cavity is likely to occur. In favorable cases the carious and necrotic portions are exfoliated, the granulation tissue is absorbed, and healing takes place. Several good recoveries have been reported, even after the whole of the mastoid process has been exfoliated. Again only small portions of bone may be detached, and fistulous openings may remain indefinitely or until properly attended to.

The prognosis in these cases of mastoid disease varies with the cause, extent and severity of the affection and with the general health of the patient. Following an acute otitis media, and promptly attended to, the prognosis is usually favorable, but in some such cases the advance may be so rapid as to baffle all our efforts to check it. It is unfavorable in tuberculosis, and in chronic purulent otitis with pent-up secretions, when the case has been neglected, and gives a history of intermittent febrile attacks, and several previous attacks referable to the mastoid region which have disappeared spontaneously or under palliative measures. The prognosis is always serious whenever there are symptoms of extension of inflammation to the membranes of the brain. Attacks of partial or complete unconsciousness, restlessness and feverishness, are of extremely grave import when occurring in a person suffering from disease of the mastoid process.

In the treatment, if the case is seen early, an attempt should be made to abort the attack by antiphlogistic measures. If the membrana tympani appears greatly congested, swollen and bulged outward, simultaneously with pain in the mastoid process, which is increased on pressure, a paracentesis of the membrana tympani should be made at once to permit the pus in the middle ear a free exit; and in a spontaneous rupture, when necessary it must be enlarged. After free drainage has been obtained, frequent antiseptic irrigations should be instituted and carried out faithfully. A brisk purge should be administered. The application of cold to the mastoid by means of the ice-bag, iced cloths, or, what is better, the Leiter coil. The ear may be syringed with the apparatus in place. It is better to keep the coil in position continuously for twenty-four hours, and under no condition should it be kept on more than from forty to fifty hours. Painting with iodin, application of leeches, and rest in bed. In influenza cases the Leiter coil does not appear very effectual in stopping the formation of abscesses. Cold is usually very soothing and borne well. Often the pain will entirely disappear through these means while the patient is in bed and quiet, but on exertion in his duties they return. And thus it is said by some writers that if marked improvement has not occurred within forty-eight hours, operation treatment will be necessary subsequently if not at once. If abortive measures have not be successful, then operative interference must be resorted to and the following are symptoms as laid down by Politzer and others generally recognized as indicating the operation:

1. Painful inflammatory infiltration of the covering of the mastoid process, especially if an accompanying narrowing of the meatus, or obstruction of the tympanum by granulations, renders it probable that a septic condition exists in the mastoid process. The operation becomes imperative when there is high fever and signs of meningeal irritation, and when the symptoms in the mastoid process have repeatedly occurred and resisted all antiphlogistic treatment.

2. Spontaneous pain in the mastoid process, increased by pressure and accompanied by bulging of the posterior-superior wall of the meatus.

3. Persistent or occasionally remittent pain in the mastoid process, with marked tenderness, even if there be no swelling of the external integument, and no apparent obstruction to the escape of discharge from the tympanic cavity.

4. When cholesteatoma existing in the tympanic cavity can not be removed, or after its extraction with the malleus and incus the condition is not improved by careful irrigation.

5. Fistulæ in the mastoid region and gravitation abscesses below it.

6. Extensive caries and necrosis of the posterior osseous wall of the meatus.

7. In all cases of middle ear suppuration, during which symptoms of meningeal irritation or of incipient sinus-phlebitis make their appearance.

8. Continued septic suppuration in the attic, the symptoms remaining unchanged after removal of the malleus and incus and several months energetic treatment, even if there are no general symptoms excepting an offensive otorrhea.

9. Pain in the mastoid process developing in certain rare cases of connective tissue hypertrophy, in osteo-sclerosis, and in osseous scars after the healing of a mastoid operation.

The operation.—A few hours before the operation the patient should be given a thorough bath, the parts within a radius of three or four inches of the ear carefully shaved and, if a man, the beard removed; then the whole side of head and neck energetically washed with soap and water, rinsed with sterilized water and

rubbed with ether to remove all oily substances. The ear is syringed with a solution of bichlorid of mercury (1 to 1000) and a wet dressing of the same is applied over the entire field of operation until the patient is anesthetized.

The antiseptic dressing is removed and the parts again cleansed with bichlorid and ear tamponed. All instruments are sterilized by boiling, and the hands and dress of the operator and assistants should receive the same careful attention as is demanded in all surgical operations. To some all these precautions may seem unnecessary, but when doing a mastoid operation the surgeon never knows what he may be compelled to do, as through anomalous positions of the parts, or to extensive necrosis, the cranial cavity may be entered, either accidentally, or he may find it necessary to extend the operation to these parts.

The incision through the soft parts should be made from the tip of the mastoid and carried upward in a curved line one-fourth inch posterior to the insertion of the auricle and to its upper attachment. It is better to make the cut, if possible, with one sweep of the knife. This is practically what is known as Wilde's incision, and has been greatly overestimated, as it is only admissible in children where the cortex is very thin and may be opened by firm pressure of the knife or sharp curette, or pus may find an outlet. In the adult, however, experience has taught all operators that it is not advisable to stop here, as the cortex is too dense and non-permeable. It certainly is not wise to do this and delay to ascertain what further may develop, and subject the patient to a second operation when it should have been completed at first. Dench states that the division of the soft parts within the meatus over the mastoid practically meets all the indications of external incision. Next, elevate the periosteum, pushing the entire flap forward. The bleeding vessels should be taken up with artery forceps, or ligated. The parts are held back with retractors so that a good view of the posterior and superior margins of the bony canal are distinctly seen and the whole field of operation laid bare. The bone should be carefully examined for fistulæ or carious spots, which, if found, will serve as a guide for entrance into the bone. If none are found we proceed to open into the antrum, which is just behind the posterior margin of the meatus and just below its superior margin. Until entrance has been gained to the antrum the opening through the cortex should never extend above the superior wall of the meatus, and keep close to the posterior wall, thus avoiding the middle cranial fossa and a possible wounding of the lateral sinus, which may be misplaced. The cortex is best removed with a broad chisel and mallet, which is held parallel to the surface of the skull and the bone is cut away in thin broad chips, the opening extending inward and forward and gradually lessening in size until the antrum is reached. This never lies less than a half inch below the surface, although large pneumatic spaces may be found near the surface, which may lead us astray unless we are cautious. To prove it bend a probe at the tip and pass it downward, forward and inward for a distance of three-fourths of an inch or more, at which depth it should pass into the tympanic cavity; thus we know that the antrum has been reached and passed through.

Having gained a free entrance to the antrum, any particles of bone, cholesteatomatous masses of granulations, must be removed and the opening to the middle ear freely curetted and enlarged to give sufficient drainage. We read of cases where after penetrating to the extreme line of safety (about five-eighths of an inch) and no antrum is reached, the operation is abandoned. This need never happen. After cutting to the usual depth without finding the cavity, the rule should be adopted to direct our canal more forward so as to bring its apex over the meatus, when we can easily chisel into the attic. The membranous meatus may be dislodged from the posterior wall and pushed forward, or the entire cartilaginous meatus turned out, thereby making entrance to the attic quite easy. The latter method will apply to a sclerotic process. If after entering the antrum no pus is found, the large cell at the apex of mastoid must be particularly investigated, all carious and necrotic bone removed from mastoid and its tip excised, if carious.

The operation should be continued until sound bone is encountered in every direction. If the inner plate is diseased it may be removed with almost perfect safety, as an exposure of the dura is not a grave matter under proper precaution, whereas to leave carious bone at this point is very dangerous. Exposure or even a wound of the lateral sinus, either accidentally or intentionally, is not so serious a matter as has heretofore been considered. It can be recognized by its bluish-gray color. If the vessel is opened sharp hemorrhage ensues, which if easy of access, may be readily controlled by a firm compress of iodoform gauze held by an assistant, and the operation is proceeded with as if this had not happened.

The good effects of opening the mastoid antrum and cleansing the middle ear is often manifested within a few hours after the operation. The pain and temperature are both diminished; alarming symptoms subside, while the state of the middle ear rapidly improves. Subsequent to the operation where the septic suppuration continues after weeks or months of careful treatment, there is probably a carious affection of the tympanic cavity or ossicula. If lumps of epidermis repeatedly appear in the irrigating fluid it is certain that there is a cholesteatoma in the attic, which indicates an operation on the tympanic cavity, described later.

Having completed the operation, I insert into the antrum a drainage tube, and pack loosely around it dry iodoform gauze, but not the external wound, merely keeping their edges separated by a strip of gauze. A tampon is placed in the meatus and the whole well covered with sterilized gauze and cotton. With a favorable course of healing it is sufficient to change the bandage every five or six days. If the temperature does not exceed 101 degrees at any time during the first five or six days, or if elevated temperature is not persistent, there will be no necessity of changing the dressing. When the dressing is changed for the first time the wound and canal should be irrigated with a sublimate solution (1 in 8000 or 10,000), and the wound cavity examined carefully for remaining granulations and roughness which, if found, must be scraped away.

If there is a return of pain after the operation, increased temperature and much septic discharge, which would be indicated by a rapid soaking of the bandages and fetid odor, a daily change of dressing is indicated. So long as the secretion is ill-smelling I use sublimate solution in the strength indicated above. After the bad odor disappears I use a 1 per cent. acid boracic solution. This must be continued until suppuration

ceases. The supposition of Küster and Bergman, that the syringing out of the operation cavity should be avoided, has not been sustained by the profession. So long as there is suppuration in the tympanic cavity the communication between it and the wound must be kept open for free drainage, and only when there is a certainly that suppuration has ceased may the wound be allowed to heal. Occasionally there remains, after the most careful treatment, a sinus in the mastoid process connected with an abscess cavity which requires a second operation. The duration of after-treatment varies from three or four weeks to one or two years before suppuration ceases, and sometimes can not be controlled no matter what is done.

It is wonderful what a beneficial effect the operation often has upon the general system, which may be readily understood when we realize that the blood is kept constantly in a more or less septic condition.

Since 1891 the mastoid operation described above was the typic one, but the collective experience in aural surgery for the last few years has shown that it proves inefficient in many cases, and so search for a more effectual process has developed several methods. In 1891 Stacke of Erfurt, Germany, made known a new operation in chronic cases, based upon the surgical principles involved in the treatment of suppurations within rigid walled cavities; namely, upon the complete and free laying open of the cavity, so that it can be curetted, tamponed and treated surgically, and the operator not compelled to satisfy himself with a more or less imperfect irrigation. The method of Stacke is practically as follows: The cutaneous incision is made a little differently than has been described, the upper part being kept closer to the auricle and carried well around to the front. The lower end must also curve more forward and extend to the tip of the process, the cut circumscribing the auricle. The bone being bared, the membranous meatus is separated from the posterior and superior walls, and its attachment internally being cut, is in its entirety shelled out of the osseous canal. With a small gouge or Dench's cutting forceps the most medial portion of the superior wall of the osseous meatus (lower lateral wall of the attic) is cut away and, if present, the malleus and incus removed. The superior wall is to be chiseled away near the drum insertion till a bent sound touching the tegmen tympani meets with no resistance on being drawn outward. The probe, as a guide, is then turned toward the antrum, and the posterior wall of the meatus chiseled away till that cavity is freely opened up. In this way Stacke converts attic, tympanum, antrum and meatus into one large cavity. After cleansing, the auricle is replaced, sutured, the membrane of osseous canal split and pressed as far back into the enlarged cavity as possible by the iodoform gauze. All subsequent treatment was done through meatus.

This operation proving extremely difficult and unsatisfactory, other methods were suggested, and now what may be known as the Schwartze-Bergman-Stacke operation has been quite generally adopted, and my experience has taught me as being the ideal one in all chronic conditions, which have resisted cure after the ossiculæ have been removed. I now rarely perform any other, and am exceedingly happy with the results obtained. It is a much quicker, easier and safer way than the Stacke, and is done as follows: The incision over mastoid and entrance to antrum is made as in the original mastoid operation. The membranous meatus is dislodged as in the Stacke and held well forward by a retractor. Operative field now shows the posterior-superior osseous canal, the antrum and a bridge of bone separating them. This bridge is now removed by rongeur forceps and chisel, the section being triangular in shape, the apex at the neck of the antrum. Thus the antrum, tympanum and meatus will be converted into one large cavity. Care must be taken at this point not to wound the facial and semicircular canals which lie directly across from this point. As a protection, if a sound is passed through the antrum into the middle ear or, if not possible in that direction, from the middle ear as far as possible into the attic, and confine our operating down to that, we will be within safe grounds. A wound to the external semicircular canal is more unlikely to occur than one of the facial nerve.

As much of the bone should be removed as is compatible with safety, so as to make the antrum and attic as accessible as possible from the external canal (See Allen, p. 103). In this operation I find the dental engine a most useful adjunct. The posterior membranous canal is now split outwardly to the concha as in the Stacke operation, and pressed back as far as possible into the enlarged cavity and held in place by tamponing.

According to Stacke, the tamponing of the membranous meatus into the artificial opening has a double advantage: 1, it secures the formation of a persistent skin-covered communication between the antrum and meatus; 2, it is a skin transplantation, from which the formation of epidermis over the entire cavity can take place. The better way, I believe, is to suture the wound over the mastoid and get primary union if possible, and treat entirely through the meatus. If all goes well the dressings are to remain five or six days, after which daily tamponing must be most carefully followed out.

The granulations must be kept down and the cavity kept as freely accessible and of the same size as just after the operation. Even when the utmost care is taken, minute necrotic pieces of bone become surrounded by granulations, small fistulous canals are formed leading to these dead pieces, around which the suppuration continues even after it has entirely ceased elsewhere.

The duration of the after-treatment varies in these cases also, but is on an average several months shorter than by the old method, and the cure is much more permanent. The indications for this operation are about the same as for the ordinary mastoid.

215 Jefferson Avenue.

PYORRHEA ALVEOLARIS IN MERCURIAL AND LEAD POISONING AND SCURVY.

PAPER NO. 4.[1]

Read in the Section on Stomatology at the Forty eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY EUGENE S. TALBOT, M.D., D.D.S.

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In this paper I discuss the pathology of the peridental membrane as observed in constitutional diseases such as mercurial and lead poisoning and scurvy. In former papers I advocated the theory that pyorrhea resulted from simple inflammation of the gums

[1] Paper No. 1, Dental Cosmos, 1886, p. 689; paper No. 2. *ibid.*, 1896, p. 310; International Dental Journal, January, 1894; paper No. 3, Dental Cosmos, 1896; Journal of the American Medical Association, 1896.

which afterward became chronic, involving the peridental membrane; that it was due to a local factor which would produce this inflammation; that the inflamed membranes became infected with pus germs and as a result liquefaction and degeneration of tissue are produced with or without calcic deposits.

The present contribution is intended to show that the genesis and progress of the pathologic state of the membrane due to constitutional causes is precisely the same. The following cases are of interest from this standpoint:

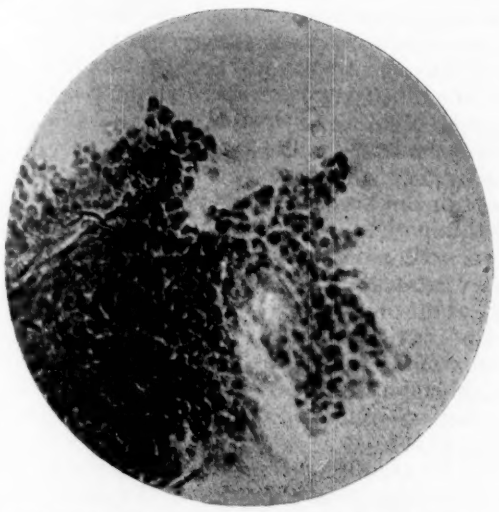

FIG. 1.—Mercurial poisoning, lower left second molar pericemental membrane; atheromatous degeneration.

FIG. 2.—Mercurial poisoning, lower left second molar pericemental membrane; atheromatous degeneration.

Mr. A., 48 years of age, merchant, was suffering from dyspepsia; was poorly nourished and very weak. His physician placed him upon tonics and calomel. In less than two weeks he came to me with the mucous membrane and gums very much inflamed. The saliva flowed in large quantities; the teeth were loose; the gums swollen; pus oozed from the sockets; the breath had a strong metallic odor. I placed him on six pints of spring water a day and saturated the gums every alternate day with iodin. I requested his physician to stop the mercurial. In a few days I had reduced the soreness and swelling so that I could remove the deposits from the teeth. The right inferior second molar was so loose that I removed it. He was discharged May 22, cured.

On removal the tooth was placed in 50 per cent. alcohol for twenty-four hours, then absolute alcohol for twenty-four hours. The membrane had receded about two-thirds the length of the root and these microscopic specimens were cut from the lower third

FIG. 3.—Lead poisoning, upper left second bicuspid pericemental membrane; atheromatous degeneration.

FIG. 4.—Lead poisoning, upper left second bicuspid pericemental membrane; atheromatous degeneration.

of the root. Fig. 1 shows a small fragment of the inflamed peridental membrane; Fig. 2 the round cells of inflammation; the atheromatous degeneration and liquefaction of tissue.

Lead poisoning.—Mr. B., 35 years of age, painter by trade. He was under medical treatment for diabetes. The gums were badly swollen; there was excessive flow of saliva; the teeth were loose; pus flowed from the gums. I put him on two quarts

ozonate spring water per day and saturated the gums as before with tincture of iodin.

Three loose teeth were removed and placed in alcohol for preparation for microscopic examination. These illustrations were taken from the upper third of the left superior second bicuspid and are not unlike Figs. 1 and 2. Fig. 3 shows round cells of inflammation. Fig. 4 is the best specimen of degeneration of

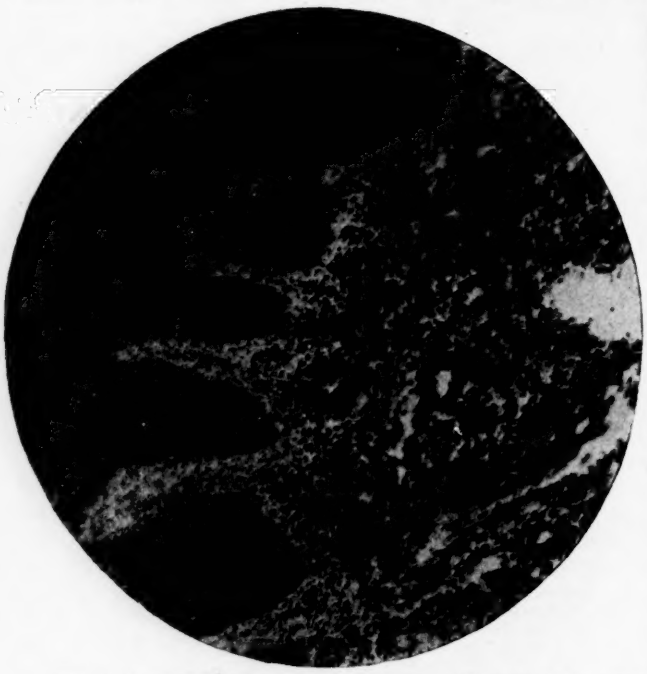

FIG. 5.—Scurvy, upper left lateral incisor, high magnifying power, inflammation of the gum and pericemental membrane.

FIG. 6.—Scurvy, upper right second bicuspid, high magnifying power; atheromatous degeneration.

the peridental membrane I have ever seen. The different stages of degeneration are well shown. In the corner is seen the root of the tooth, dentine and cementum. The whole surface of the peridental membrane is in a high state of inflammation. Just at the border of the root may be seen an area of membrane softening, and just beyond and joining is observed the breaking down of tissue. In the center is seen two areas of softened tissue more advanced in degeneration.

The following scorbutic case was referred to me by Dr. George W. Johnson:

The patient, a 25-year-old American, was admitted to the Cook County Hospital for the Insane, Dec. 2, 1892, suffering with melancholia attended by delusions of persecution and suicidal tendencies marked by refusal of food. June 1, 1896, he again began to refuse food but took liquid diet on persuasion. June 29 the patient was transferred to the hospital because of his emaciation. Scorbutic symptoms were discovered. July 18, 1896, the constitutional and local symptoms of scurvy were well marked. The teeth were covered with sordes and loosened. Under anti-scorbutic treatment these symptoms had fully disappeared by Aug. 13, 1896.

Through the kindness of Dr. Johnson I was allowed to see this patient. I found none of the teeth very loose, showing that the disease was superficial. I removed two teeth that were decayed and were loosest. These were prepared as before. Fig. 5 shows the gums and peridental membrane in an active state of inflammation. Fig. 6, the root of the right superior second bicuspid with peridental membrane attached, shows active inflammation and an area of tissue degeneration.

It will be seen, therefore, that in all three cases the same pathologic changes occur in the gums and peridental membrane, whether the original source of gum inflammation be local or constitutional.

The fact that it can be treated successfully locally and that the calcic deposit is never observed in the substance of the peridental membrane, but invariably outside, beyond the pus line, leads me to believe that it is not, *per se*, a constitutional disease, although the local inflammation may be due to constitutional causes; also that there is no such thing as serunal deposits as suggested by Ingersoll, but that the deposits result from pathologic and chemic changes which take place in the tissues themselves, and are a consequence and not the cause. If the technique laid down in former papers be carried out, operators will be successful in treatment.

A CASE OF PROGRESSIVE DISEASE OF THE BONES OF THE FOOT, ANKLE AND LEG.

AMPUTATION AT MIDDLE THIRD OF LIMB WITH THE LOCAL ANESTHETIC EFFECT OF EUCAIN HYLROCHLORID.

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The patient, E. C., age 71, is of American parentage; his mother, a healthy woman, lived to the age of 70 years. His father when about 30 years of age, had an attack of paralysis which rendered him a cripple. He died at about the age of 35. The son, an active young man, very fond of out-door life, was a servant to an army officer in the Mexican War, accompanying his employer afterward to Texas and Utah and sharing all the privations and dangers of the army.

He had attacks of malarial fever in western Texas. He also had an attack of rheumatism, which was but the precursor of others more severe. During these years he drank considerably at times. He denies ever having had any specific trouble. About fifteen years

ago he came to North Dakota where he has had many attacks of articular rheumatism, resulting finally in great deformity and helplessness. Some years ago he lost an eye from traumatism. He describes himself as always having been "restless and nervous." He had been spare but strong, active and enduring, till the progress of his arthritic enemy compelled him to more sedentary habits of life. A sister, 68 years of age, and two brothers some years younger, are still living and in good health. There is no history of any tubercular affection in the immediate family of the patient.

About nine years ago the deformity and pain produced by chronic rheumatoid arthritis began to necessitate the use of the cane or crutch. In about two years more two crutches were needed and for over a year past he has been almost helpless, and a part of the time entirely so. The joints affected, by deformity were more especially those of the hands, fingers and knees. The shoulders and hips were not affected, with the exception of great limitation of motion and pain when in action. His fingers deviated from the line of the metacarpal bones, being drawn toward the ulnar side. The joints at the base of all the fingers were greatly enlarged. The joints between the metacarpal bones and the phalanges were flexed. The first phalangeal joints were extended, while the second joints were in a state of slight flexion. The muscles all over the body were wasted and more especially those connected with the joints. This condition is found today, the only difference being that the deformity and helplessness have been accentuated by the lapse of time.

During the winter of 1896–7 a slight redness of the skin appeared between the fourth and fifth toes of the right foot. He says it looked as if it had been scalded. It was sore to the touch and he felt a dull pain occasionally which seemed to be deeply seated. The redness and swelling extended very gradually to the other toes and adjacent portions of the foot, especially affecting the outer border. There was very little external evidence, even at a later date, to show the extensive destruction of bone tissue which was afterward found. Small portions of skin upon three of the toes became gangrenous and bony detritis issued from beneath them along with other products of suppuration. A dull pain of a burning character was felt by the patient almost constantly and referred by him principally to the ulcers upon the toes. The foot became generally of a bluish color and an exploratory incision, followed by the passage of a probe, proved that in spite of the limited local manifestations of the disease a very general death of the bones of the entire foot had taken place. The nutrition of the skin for three inches above the malleoli was impaired. The skin here seemed thin, of a bluish tinge in spots, while pigmentary deposits of a yellowish and brownish color alternated with the bluish discoloration. At the time of this examination it was decided in view of the general symptoms present that speedy removal of the limb would be necessary to save the patient's life.

For some three weeks preceding the time of examination the patient's general condition had been growing more and more serious. The progress of the bony necrosis of the foot, ankle and lower part of both bones of the leg had continued for some time without producing any apparent general symptoms, much external evidence of the extent of bony tissue involved, or much destruction of the soft parts lying next to the diseased bone. At this time the temperature was found running from 101 to 103 in the evening; the force of the pulse was diminished, though the frequency was not increased as much as is usual with such a temperature. It was soft and compressible. There was almost complete loss of appetite and an obstinate diarrhea persisted in spite of the small quantity of carefully selected food taken. The pain had increased until it had grown almost unbearable, not from extreme acuteness, but from its constant presence and depressing character.

Thus from April to September 1 very little disturbance seems to have existed in a general way from the local disease, but from September 1 till the 16th, when amputation was performed, the general condition of the patient grew rapidly worse. The condition of the joints, muscles and tendons were as previously described. From long inaction and exhaustion from pain, fever, and the probable toxic influence of absorption, the patient was very weak and had great apprehensions regarding the taking of a general anesthetic and the final outcome of the operation, which he was inclined to believe would be fatal. In selecting the anesthetic to be used an examination of the heart was made, with the result of finding that there existed a condition of both chronic pericarditis and endocarditis with a chronic bronchitis. There was a weak and irregular impulse of the heart and considerable precordial anxiety, and occasional pain was complained of by the patient. On account of these intra-thoracic conditions and the great repugnance of the patient to the use of a general anesthetic, and his apprehension that it might cause his death, it was determined to operate under the local effects of eucain.

On the morning of Sept. 16, 1897, the patient, having slept poorly during the night from pain and apprehension, was found to have a temperature of 101 F., pulse 70 and respiration 27. He ate a light breakfast about 7 o'clock and was conveyed to the operating room at about 10 A.M. The ordinary precautions for rendering the skin of the limb aseptic and for performing the operation without danger of infection were carefully attended to. The patient reclined with the head comfortably supported by pillows upon the operating table. A tablespoonful of whisky was administered for its psychical effect, and the limb wound with an Esmarch's bandage, commencing well above the discolored skin on the lower part of the leg. The bandage being unwound was secured by a tourniquet above the knee. The site of the operation was selected nine and three-fourths inches below the lower border of the patella, so that the skin included in the flaps might be entirely normal as regards its appearance. At a point of the limb where it was desirable to have the bone sawn, a hypodermic injection of 5 m. of a saturated solution of eucain hydrochlorid, freshly prepared with sterilized water was made. The limb was girded by a series of these injections about two inches apart. By the time these were made the superficial tissues were sufficiently anesthetized to permit of two or three injections being made into the deeper tissues of the calf, with no perceptible annoyance to the patient. In five minutes anesthesia seemed complete and the flaps were marked out and the operation proceeded with as usual.

An anterior cutaneous and large posterior flap was formed at about the junction of the lower and middle third. The shape of the wasted limb, and the absence of any necessity for the stump being afterward subjected to even the ordinary traction or pressure, mak-

ing it seem preferable to other forms of operation usual in ordinary cases.

Twice during the formation of the posterior flap, the patient complained of a smarting sensation following the use of the knife. The first time an injection of sterilized water removed the ground for complaint. The second time a little severer twinge from incision of that part of the flap lying next to the bone, showed that anesthesia of that portion was not yet complete. A free application was then made with sterilized, borated absorbent cotton wet in the solution of eucain, and in two minutes the operation was resumed on that part of the flap. No further discomfort was experienced by the patient at any time during the operation. The fibula was sawn shorter than the tibia and the sharp crest of the latter again sawn off, and plenty of time was taken to properly trim the large posterior flap. There was considerable oozing from the surfaces of the flaps after loosening the tourniquet, and it was a long operation on this account. Yet, forty-five minutes after the first incision was made, a test showed complete anesthesia of the skin covering the end of the stump. Soon after the operation was begun the patient's pulse rose to 90, which I should attribute to the effect of the whisky and the excitement of the occasion, rather than the eucain. The respirations were not noticeably quickened, and the pulse soon fell again to its usual rate as the operation proceeded.

The stump being properly dressed the patient was carried from the operating room to his ward and placed in bed. He suffered from no depression in pulse or respiration, had no nausea or headache, and in an hour after the operation he was sitting up in bed eating a heartier meal than for some time past. There was no evening exacerbation of temperature, and after twenty-four hours the temperature was normal and it has since remained so. The pain in the stump after operation was at a minimum and perfect union was obtained. The stitches were removed and the stump examined at the expiration of nine days, and it was found entirely healed. During this time there was a remarkable improvement in the strength, appetite and general appearance of the patient, which has continued till the present time. The previous disease causing his confinement to bed or chair persists to nearly as great an extent as before, suffering exacerbations from nearly every change in temperature and humidity.

The metatarsal bones of the diseased foot to a great extent were enlarged, softened and of a dark red appearance internally. The whole of the tarsus was similiarly affected, the cells of the bones being filled with a reddish, serous, glairy fluid and with soft granulations of feeble vitality. The bones were everywhere so softened that after a thin layer or sequestrum was removed an ordinary probe penetrated the carious tissue with ease. The lower part of both tibia and fibula were in much the same condition. The intervening joints appeared intact, though the muscular planes and areolar connective tissue had diffused through them everywhere, sero-purulent and muco-purulent liquid. This purulent infiltration of the soft tissues extended to within an inch of the lower border of the posterior flap.

This operation shows conclusively that in those cases where previously existing pathologic conditions, or other causes render the administration of a general anesthetic dangerous or inadvisable, the use of eucain will enable us to perform a painless operation, free from all the dangers and annoyances attending the use of chloroform or ether during their administration, the performance of the operation, or the emergence from the anesthetic condition.

REVIEW OF THE OPERATIVE TECHNIQUE ADOPTED IN DETERMINING THE LOCATION OF INTESTINAL OBSTRUCTION, WITH THE SUGGESTION OF A SIMPLE AND SAFE METHOD.

BY ROBERT J. REED, M.D.
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In the surgery of intestinal obstruction, the steps of chief importance in the operative technique are the removal of the cause of the obstruction when located, and the repair, if necessary, of the wounded bowel. Final success, however, depends upon the general condition in which the patient is left at the end of the operation, as much as upon the condition of the liberated intestine. All the preliminary steps, therefore, should be so ordered as to avoid unnecessary sacrifice of time or the infliction of injury by mischievous bowel manipulation.

In addition to the remote danger of intestinal paresis and peritonitis, there is another more imminent. Shock is the prominent element of danger in the operative interference for relief of this condition. It is already present, usually in a marked degree, as a result of the injury the intestine has sustained, as well as from the depressing effects of the vomiting and pain to which the patient has been subjected. Whatever deepens the shock, be it a prolonged operation or extensive handling of the intestines, diminishes the probability of favorable reaction and the patient's recovery. Authorities make the statement, and truthfully, that the nature and location of the obstruction can not be known until an abdominal section has been made, but they permit the inference to be drawn that the situation of the stricture is then readily ascertained. One, under this impression, undertaking such an operation with limited experience, may meet with profound surprise. Locating the point of obstruction with the hand among the intestines is in a large proportion of cases a difficult and perplexing procedure.

The first step in the operation for the relief of intestinal obstruction involves an important question, the situation of the incision into the abdominal cavity. Should an induration or tumefaction be felt, the temptation is great and the decision apparently a rational one to make the section directly over that point. But in a majority of cases it will prove a mistake and result in disappointment and confusion. The local swelling which presents may be a loop of distended intestine, a section of rigid muscle or a fecal collection, and be situated at a distance from the seat of obstruction. The best selection is the median line below the umbilicus, save in very exceptional instances. Its advantages are many over any other position. The incision has less depth than in any other location, and therefore may be shorter. It is made with greater speed and less hemorrhage. Being in a central position, every portion of the cavity can be investigated with equal ease and dispatch. In case of gangrenous bowel and fecal escape the danger of infection is less than if planes of connective tissue are laid open, as is done when departing from the linea alba.

The one disadvantage of the median incision is made manifest should the obstruction be found in the large intestine. Because of its short mesenteric attachment, it may be impossible to bring the strictured portion into the wound, and consequently a second section to the side will be necessary. This consumes time and adds somewhat to the shock, but the chief objection is, that with the intestines tensely distended, as they frequently are in obstruction, the difficulty of preventing their protrusion with two openings through the abdominal wall is greatly increased. Consequently if there be exceptions to the rule of the median line incision, it should be in those cases in which the history is convincing and the symptoms presented corroborative of the diagnosis of involvement of the colon. The evidences of obstruction in the lower bowel are usually clear and easily differentiated from those presented in occlusion of the small intestine. If in addition to the history and symptoms, a tumor can be felt in the line of the ascending or descending colon, an incision in this location would be expedient and justifiable. In case a second section of the abdominal wall is for any reason necessary, it is a judicious procedure to carefully close by sutures the primary incision as soon as the stricture is located, not waiting, as is usual, to make it a final step in the operation. By this precaution one way for the escape of distended loops of intestine is closed and their exposure and handling avoided.

After the cavity has been entered the difficult work of the surgeon begins. It consists in promptly discovering the position of the obstruction without resorting to means which will increase the dangers from shock and peritonitis. If its exact location can not readily be ascertained, a measure frequently resorted to as a way out of the dilemma is evisceration. Only a limited experience is necessary to bring the conviction that this procedure should be strongly condemned. The intestines are withdrawn with ease, but returned with difficulty. They are greatly distended, even the collapsed portions will probably become so, the moment the stricture is relieved, or if above it, as soon as they are withdrawn. If a great extent of bowel has in this condition protruded, it is replaced through a section of usual length with great difficulty, requiring not only the hands of the operator, but those of an assistant as well, both laboring from every direction and exerting actual force in their efforts. Injury to the intestine must necessarily be inflicted. If careful handling of the bowels results in a degree of shock, as is frequently observed in abdominal surgery, how much greater must be the danger when the manipulations required involve positive roughness. In addition, the bowels are exposed to a variable temperature. The attempt is made to give them warmth and protection with hot towels; but these are always too hot or too cold. It is impossible to obtain through them a proper and uniform heat, but with this object in view there must be a constant changing and replacing of the cool with warmer towels. This variable temperature, together with the mechanical irritation from the towels, unquestionably encourages the development of peritonitis. Undoubtedly it should be the chief care of one assistant to prevent the protrusion of the viscera.

Securing the collapsed bowel and "following it up to the stricture" is considered an invaluable aid. This was announced as a new idea ten or more years ago by Mr. Hulke of England. It has been extensively adopted, and I have been unable to find any criticism of it. The suggestion is founded upon the theory that collapsed bowel is found only below the obstruction. This, however, is a fallacy. It is present not infrequently above, sufficiently often to make it an unsatisfactory guide. If this method is selected it may result in the handling of the entire small intestine as far as the duodenum before the mistake is discovered that the investigation is being made in the wrong direction. In a case which came under my observation the obstruction was in the sigmoid flexure and yet the greater portion of the small bowel was collapsed.

A rational solution of the problem presented in such a condition would seem to be that the bowel above the obstruction being greatly distended, the muscular coat becomes paralyzed for a considerable distance, until a point is reached where the muscular tone of the intestinal wall is unimpaired and consequently less distended. This disparity in the lumen and tone of the intestine encourages the formation of an angle, and as the meteorism increases and the abdominal tension becomes great, the angle is made more acute, and the healthy segment is flattened out by the pressure from the distended loops sufficient to occlude it. On the other hand, the vomiting becomes severe and persistent, peristalsis is reversed, the intestine is gradually emptied and consequently collapses. This condition probably occurs only in the small bowel, the short mesenteric attachment of the colon preventing its developing such a complication. This explanation of the formation of the kink in the intestine and its collapse may be fallacious, but the fact remains that collapsed bowel is found at times above the obstructed point as well as below, and therefore, is not a reliable guide, as it is impossible to know in which direction to follow it. And this statement holds true, although less mischief will be done when tracing collapsed bowel below the stricture. One is unable to decide until a large extent of intestine has been handled, whether the search is being made toward the point of obstruction or away from it.

In the effort to locate the stricture the sense of touch must be largely utilized. It is also important that a definite plan of investigation be fixed in the mind of the operator. An order of procedure, which will prove expeditious is, with the entire hand in the cavity, to first explore the left inguinal region, excluding the possibility of obstruction at the hernial orifices upon that side. With the hand in this location it is an easy matter to examine into the condition of the sigmoid flexure. If it is found in a state of distension the inference may at once be drawn that the obstruction is below. If collapsed, it is above. The next step should be the exploration of the right inguinal region, the hernial orifices upon that side, and the cecum. Should it be found distended, the conclusion must be that the obstruction is the colon. With this much known it is not a difficult matter to locate it definitely by either following down the distended colon or returning to the left side and tracing up the collapsed portion. If the cecum is collapsed the difficulty is above in the lesser bowel. It is at this time that a selection must be made of the method by which some eighteen feet of intestine are to be examined.

A less difficult and much safer method than those which have been named, evisceration or following collapsed bowel, is one dependent upon what may properly be termed the *color guide*. I am not aware that

attention has been called to it, but in my experience it has proven a helpful and practicable idea.

At the seat of strangulation, circulatory changes begin at once, which will soon be manifested in the serous coat, to the eye; a congestion which deepens and extends further along the distended bowel the longer its exciting cause continues. Should it be some hours, not inches, but feet of the bowel will exhibit a highly colored, injected appearance, which fades from a scarlet at the point of stricture into a pink, and finally is lost in the normal white or gray color. The suggestion is, cautiously bring one loop after another of distended intestine into view at the bottom of the abdominal incision, being directed by the sense of touch to those loops tensely distended, as they are nearest the stricture. By carefully noting their appearance a clew will shortly be found in a loop of congested bowel, and by tracing along in the direction in which the color is deepening the obstruction will be located.

73 Twelfth Street.

HARE LIP, A CASE IN PRACTICE.

Presented to the Section on Stomatology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY GEO. T. CARPENTER, M.D., D.D.S.

PROFESSOR OF ORAL SURGERY, COLUMBIAN DENTAL COLLEGE; INSTRUCTOR IN NOSE AND THROAT DEPARTMENT COLLEGE OF PHYSICIANS AND SURGEONS.

CHICAGO, ILL.

The patient, a lady 22 years old, had suffered from birth with double hare lip, also cleft of both hard and soft palate, which was very large, but nature had largely overcome this latter defect by hypertrophy of

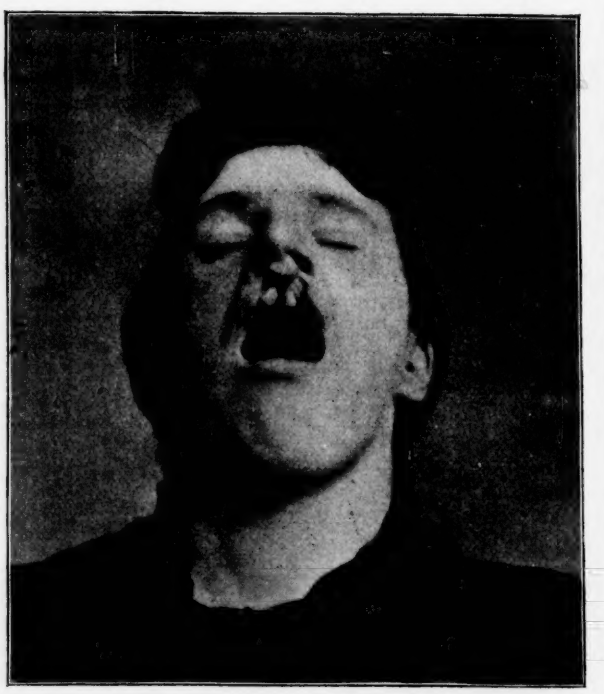

Figure 1.

the inferior turbinated bodies, and, in consequence, the voice, though not good, was much better than many with a very slight opening in the hard palate or bifurcation of the velum. But the deformity of the lip did not improve. The patient was well developed, strong and healthy. She had always lived in the country. Owing to her mother's opposition to surgery the lip was not operated on. The lady was of a healthy and well-developed family. She came to Chicago and I was consulted and an appointment made for July 28, 1896, at which time Figs. 1 and 2 were taken, after which I made a careful examination and found that five anterior teeth were very irregular

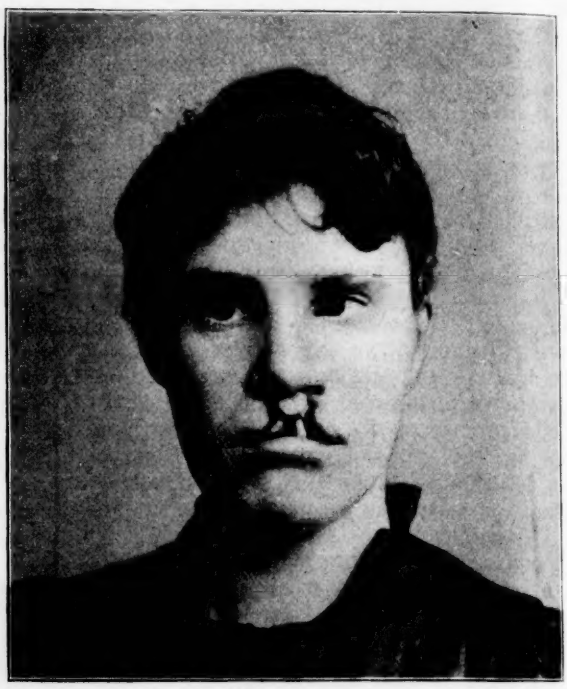

Figure 2.

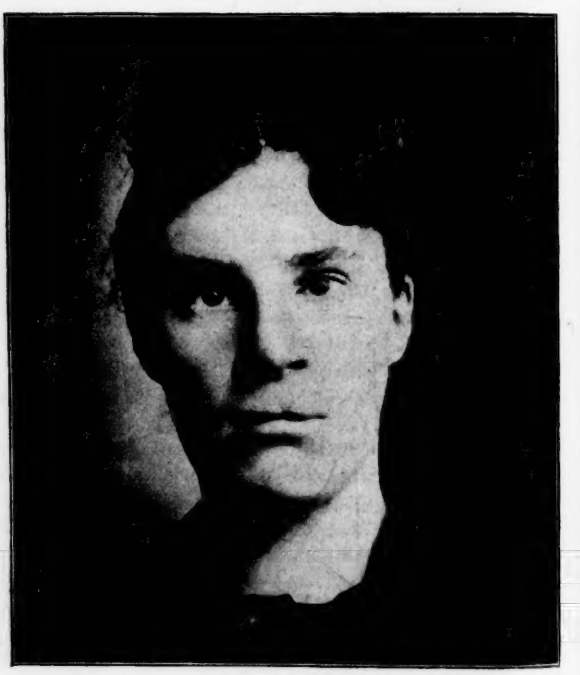

Figure 3.

and badly decayed, the two centrals being movable on account of the loose intermaxillary bones; the cuspids were irregular, but sound. I also took a sectional impression of the upper part of mouth. I then used local applications of 10 per cent. aqueous solution of cocain and removed seven teeth, one of which

was a supernumerary. As soon as the gums were healed a rubber plate with six anterior teeth and soft rubber velum was inserted, and on September 15 we operated on the lip. The operation was performed under ether. We first removed the mucous membrane, with considerable tissue, from the central teat-like projection. We then passed a lancet through the lip of each side, and cut upward and toward the median line to the extreme upper angle of the cleft. Adhesions of the lip and gum were also freely separated by the use of the knife; then turning the flaps down (the assistant pressing the cheeks well forward), the surfaces of the flaps were brought together. Three deep catgut stitches were taken in the under side of the lip. The margin of the wound was then neatly placed in position and secured by a few fine stitches. Cohesive strips of English moleskin were placed on each cheek, which were allowed to extend to the corners of the mouth and turned under, so as to leave free the anterior ends, which had holes punched for lacing. The surgical dressing was powdered iodoform, covered with 10 per cent. iodoform gauze. The cohesive strips were then laced tightly, so as to bring the cheeks well forward and relieve all tension on the stitches. Dobell's solution was used as a mouth-wash. The lacing was removed and the wound examined each day for a week. The fine stitches were removed the third and deep stitches the sixth day. We had union by first intention. The patient was dismissed October 12, upon which date the photograph Fig. 3 was taken.

TREATMENT OF CARBUNCLE.

BY JOHN PHILLIPS, M.D.
STEVENS POINT, WIS.

The JOURNAL of Dec. 12, 1896, p. 1226, contained an article by W. E. Shaw, M.D., of Cincinnati, on the "Conservative Treatment for Carbuncle." My own observations have been so entirely different from the teachings of this article that I am constrained to make a most decided protest against this plan of no treatment, or next to none, of this most formidable disease.

It was the fortune of the writer, in the autumn of 1865, to suffer from a large and most painful carbuncle, located centrally on the back, overlapping both scapulæ, which was aggravated by attending to professional duties for a week after the disease had made its appearance, not only at home but during the same time making three trips in a buggy a distance of twenty-two miles, returning home in the evening much chilled. By this time I was obliged to go to bed and remain there for the next four weeks, bearing with reasonable fortitude the pain which one writer speaks of as horrible. Gross says: "The pain is throbbing and exceedingly violent, the part feeling as if in contact with melted lead." One who had had personal experience, compared the pain to that of a "large claw, with a hundred talons, grasped into the swollen, inflamed and now exquisitely painful parts, and slowly but constantly tightening its grasp, for days, for weeks, till the last vestige of life is tortured out of the diseased structures." These descriptions of the pain, which may at times be modified in persons and in location, are as nearly correct as any that can be given. Finally recovering, it was with a fixed determination that no patient of mine should suffer as I had with a carbuncle. I realized that it was a formidable disease and that little benefit resulted from the measures then being used and believed one would be justified in using more heroic measures in treatment.

In March, 1867, I attended Judge B., 65 years of age, of powerful frame and iron constitution, but considerably broken by hardships and exposures. I found him suffering intensely with a carbuncle of the upper lip. His lip, face, nose and forehead were much swollen. One eye was entirely closed, the other nearly so. A full dose of opium was given at once and pieces of caustic potash were put in two of the three openings in the lip. The potash was pressed well below the surface and the bloody exudation was from time to time carefully wiped away, much care being taken to protect the external surface. The potash was allowed to remain for about twenty minutes, then the wound was well washed out with weakened vinegar, dressed with a warm poultice well wet with tincture of opium, another anodyne was given and the patient dismissed for the night. The next morning all was changed. Nearly all swelling of the lip as well as of the other parts was gone. In reply to my inquiry as to his condition, he said, seizing his lip, "It got well last night; it is a little sore when I pinch it, but it has not given me a bit of pain since an hour after you left me." It did not give him further pain. With dressings of mild cerate it soon healed, leaving but a slight cicatrix.

About two years later I attended the same patient and again found him suffering with a carbuncle, a little above and back of the right hip, but as yet showing no openings. His health was more broken than formerly, having suffered many weeks with sciatica. Dreading the knife, the potash was applied direct to the carbuncle. A plaster of cerate was liberally covered with the caustic and applied, the carbuncle having been first covered with soft leather (buckskin) through which an opening had been made three-fourths of an inch in diameter. The caustic was allowed to remain about forty-five minutes, to make sure of its reaching the deeper diseased structures. The local after-treatment was about the same as at the former time and the results similar. There was no pain except for a short time after the burning. A change, in a few hours, from torture to a quiet and restful condition.

A few months later I attended Barney D., 45 years of age, much broken in health by exposure and stimulants, who was suffering from a large carbuncle on the back of his neck. The parts were greatly swollen, indurated and exceedingly painful. Anodynes, stimulants and tonics were administered and the caustic[1] liberally applied, pressing it deep into three of the four openings already existing. This was done notwithstanding the seeming certainty of approaching dissolution. The local after-treatment was similar to that in former cases and the result quite as favorable. The use of the potash was followed by a restful sleep and the same calm hopeful condition.

The next case was that of Mr. C., who was suffering with a large carbuncle just above and a little to the left, but encroaching on the umbilicus. The swelling was large, indurated and exceedingly painful. First making a free incision, the caustic was pressed

[1] I usually put a piece of stick caustic about one-sixth to one-fourth of an inch in length in each opening. In the first case only half this quantity was used.

well into three places, one-half inch apart, and allowed to remain about twenty-five minutes, in the meantime carefully wiping away the bloody exudation. The wound was then washed out with weakened vinegar, as in other cases. Poultices were next applied and changed once an hour for a few hours, while the discharge was profuse. Then the cerate dressing was used and the wound soon healed. In two hours the condition of this man was changed from that of torture with great depression to one of calm quiet.

It is thirty years since commencing the treatment of carbuncle by the caustic method and while the number of cases has only been about twenty, and half that number brought to my knowledge by physicians to whom I had recommended this treatment, the results have been so uniformly satisfactory, that I have not cared to try injections or excision. It must, however, be remembered that the remedy is a heroic one with which harm may be done if not used with care.

Dr. Marks of Milwaukee has recently treated a carbuncle successfully by the caustic method. He, however, used the nitrate of silver instead of the potash, and in this case with equal benefit. Now if the caustic silver will uniformly or generally destroy the carbuncle it will be more desirable than the stronger caustic, as the destruction of the soft parts will be much less and little or no care will be required to prevent the destruction of the integument. My own impression had been that the milder caustic would limit its own action and fail to permeate and destroy all of the diseased structure. But the success in this case will warrant the further trial of the silver.

At the close of a heated term in August, 1896, a cold blast from the north came in the night, and awakening in the morning I found myself shivering with cold. Within a day or two a small tubercle was discovered on the back of the neck and I had not long to wait to know that it was a carbuncle. The sulphid of calcium was taken (ten to twelve 0.03 gram pills daily) till the system was saturated, seemingly with no effect on the disease, as within a very few days the swelling extended quite across the neck, a little onto the back, and well up onto the scalp. I now had Dr. R. use the knife and potash on the carbuncle. Three days later two incisions were made, followed with the potash; two days later two incisions and more potash; two days later another incision and potash; two days after this two incisions and potash. The last time positive orders were given to continue the use of the potash till the last vestige of the diseased structure had been destroyed. The night previous had been passed as in a nightmare. I was enabled to get through the night only by the vigorous use of artificial heat, stimulants, hot broths, trinitrin, strychnin and quinin. This last burning was followed by a restful sleep.[2] As a result of the many burnings an open sore was left, five by two and one-half inches in extent and deep enough to convince the surgeon who follows the excision method of treatment that in this case a remedy even more heroic than the knife had been used. Within three weeks my weight had been reduced from 162 to 129 pounds and my strength so lessened that I could go from one bed to another only by the aid of an assistant. A good recovery was made, though the healing of the wound was protracted till the beginning of December.

It may be asked, why this tardiness of the potash in doing its work? It was used timidly (against the advice of others), too sparingly. too near the surface, destroying the integument but failing to fully reach the deeper diseased structures. Another element, entering into the cause of the obstinacy of the disease, may have been the condition of the urine, which was found, about the time of the last burning, to be loaded with sugar. All cases save one, treated by myself with the potash, and all cases coming to my knowledge, treated by other physicians with this remedy have made good and rapid recoveries. The one exception was the case of a Polish woman, 50 years of age, with bad surroundings.

She was treated in August, 1895, for a large and greatly indurated carbuncle, the induration occupying all of the back of the neck. Following a free incision the potash was liberally applied at three points in the incision, but the benefit proved but temporary, the pain returning in force in the evening, and the woman died the second morning before making my second visit. This case, as well as my own, shows the necessity of an early repetition when the first burning proves insufficient. Chloroform may be used during the cutting and burning, at the same time giving trinitrin, strichnin and codein. Quinin, iron, strychnin, arsenic and sulphid of calcium are some of the drugs that may be given with benefit following the local treatment.

As to the choice between the radical and the conservative methods of treatment of this formidable disease, it would seem there should be no hesitancy. In the use of the potash there is, or may be, considerable destruction of the soft parts, but the disease itself, the horrible pain and the danger to life from septicemia, or from the grip of the disease on all of the life powers, is eradicated. Only an ulcer, tender but painless, is left, which soon heals, giving little trouble after the burning. With the conservative treatment the destruction of the soft parts is nearly, if not quite, as great as when the caustic is used, and the ulcerative process continues for weeks attended with horrible pain. Add to this the very considerable percentage of deaths occurring under the conservative treatment, and I feel assured that the surgeon or the patient who has tried the more radical treatment will consider no other.

[2] It is noteworthy that after each burning, as the pain caused by the potash subsided, there was a restful period for an hour or two, with a feeling as if about to get well. But in a few hours the pain would be back with the same tightening grasp, but after the second burning not with quite the original force.

TREATMENT OF HEMORRHAGE FROM THE GENITALS IN OBSTETRIC PRACTICE.

Read before the Wayne County Medical Society, at Belleville, Mich., Oct. 14, 1897.

BY GUSTAVUS M. BLECH, M.D.
CHICAGO, ILL.

Pathologic hemorrhage means danger to the life of the patient. Hemorrhage in obstetric practice, particularly during and after parturition, occurs with sufficient frequency to warrant the practitioner to be prepared for it whenever called to a case of labor. Hemorrhage even of a threatening character may also occur at any time during pregnancy.

Hemorrhage, like all other emergency cases, calls for prompt action on the part of the physician. There is no time to look up the subject in text books or even to consult a more experienced practitioner, hence everyone is expected to be thoroughly familiar with the pathology and therapy of all emergencies of whatever character. However, in spite of the most rational

aid rendered, life can not always be saved, but if the surgeon does not lose his presence of mind, diagnoses the case properly, has all the necessary apparatus at hand, and above all operates aseptically he can conscientiously say that the patient succumbed in spite of treatment.

Presence of mind will do much. In the first case of postpartum hemorrhage to which I was called I found the attending accoucheur, a young and irregular physician, in a state of mental disturbance. I arrived after the hemorrhage had stopped spontaneously. As I was met by the woman's husband on the street, I had nothing but a hypodermic syringe with me. As soon as I arrived I removed the placenta, lying partially in the vagina, partially in the cervix, and commenced heroic stimulation, auto-transfusion, etc., but in spite of all the woman expired in a few minutes. During that time the "attending" physician was helpless, unable to render me the least assistance. He had in his satchel nothing but a few bottles, a pair of scissors, and an ounce of cotton. Had this woman received prompt and rational aid I am confident she would be alive today. On the other hand, Dr. Steinbrecher related a similar case in which Credé's manipulations failed to cause contractions of the uterus quick enough to stop the hemorrhage. Noticing a large piece of ice in a pitcher of water the doctor pushed the ice into the uterus and the woman owes him her life, and a bill.

I have divided my essay into two parts, viz.: hemorrhages during pregnancy and in those met postpartum.

HEMORRHAGES DURING PREGNANCY.

They may come from either the vulva, vagina or uterus. The vulva may bleed from lacerations or injuries of a traumatic character, the vagina from ulceration or decubitus caused by ill-fitting pessaries, which forms of hemorrhage have nothing to do with pregnancy, hence will not be further considered.

Hemorrhages not infrequently coming from varices, usually in the neighborhood of the labia majora or minora or around the clitoris are very serious indeed. The rupture of a varicose vein may under some circumstances lead to death in a few minutes, but usually in one or two hours. The diagnosis is easy. On careful examination the torn varicose vessel will be found and recognized.

If the hemorrhage does not come from the vulva, the entire vagina and the vaginal portion of the cervix should be examined next, for not infrequently, carcinoma complicated as it is by pregnancy leads to grave hemorrhages. Undoubtedly pregnancy, on account of the general hyperemic condition of the genito-reproductive apparatus, influences the neoplasm, making it hyperemic and softer, thus inducing ulceration and decomposition. In such cases, the diagnosis from a prognostic as well as therapeutic point of view is important, for delay in rendering radical aid may mean a loss to the mother which can not be restored. In progressed cases of carcinoma of the vagina or vaginal portion of the uterus the trained finger and eye of the examiner will prove sufficient to recognize the true character of the growth by touch and macroscopic inspection. In incipient or otherwise doubtful cases the microscope will settle all doubts. In this connection I may also mention myomata as apt to cause hemorrhage in obstetric practice. They are however but rarely met with. Personally I have no experience with them in that direction, having seen them only in gynecologic practice as an obstacle to conception. Hemorrhages coming from the uterus, even in the first few months of pregnancy are of greater importance. In most instances, they mean abortion or conditions which may require the induction of abortion or artificial labor. The diagnosis of threatening abortion offers hardly any difficulties. The history of the case, perhaps the existence of certain constitutional troubles, previous abortions and the presence of periodical pain, will help us to explain the nature of the hemorrhage. By means of an exploration of the uterus through the cervix (if this be possible) as well as by inspection of the expelled blood clots, ovum and secundines we may determine whether or not abortion has already taken place. This is the most important question to be answered, as without this, scientific treatment can not be instituted.

Of grave importance to the mother as well as to the child are hemorrhages due to either lateral or central, complete or incomplete placenta previa. The situation is still more serious when hemorrhages occur from a separation of the normally situated placenta. It is nearly always fatal to the fetus. The diagnosis of this condition is not always easy, especially when the blood does not escape per vaginam, but collects in the uterine cavity. However, the existing pains without contraction of the uterus, while the latter becomes abnormally large, finally symptoms of collapse as observed in cases of exsanguination, will hardly leave us in doubt as to the nature of the trouble.

These are the most important forms of hemorrhage from the genito-reproductive apparatus occuring during pregnancy.

POSTPARTUM HEMORRHAGE.

I shall never forget my first case of forceps delivery. I administered chloroform, applied forceps and delivered a semi-asphyxiated boy and resuscitated him by artificial respiration. As soon as the first cry was heard, husband and friends came in hastily, but stood quietly with the same sorrowful looks on their countenances. I asked them whether they were not satisfied, and received this answer: "We never congratulate the parturient until the mother cake is removed." I removed the placenta after ten minutes waiting. I have learned a lesson since then and, like the Jews, look upon that "mother cake" with much respect, for if it does not come quick enough and we help it along a little, postpartum hemorrhage and sepsis frequently result. This plainly teaches us to leave the placenta alone. Let the uterus expel it into the vagina, and if you give it time enough, it will do so more or less faithfully in every instance.

Lacerations which occurred during delivery may give rise to considerable hemorrhage. Under this heading we may mention rupture of the uterus, terminating fatally only too often. If these be not the cause of a postpartum hemorrhage then it is due to inefficient contractions of the uterus-atony. There are many causes for such a condition, but I shall mention only one, an overfilled bladder. In all cases of postpartum hemorrhage due to uterine atony this should be considered and the bladder catheterized.

The most reliable way to make a correct diagnosis of post partum hemorrhage is by means of a physical examination. This is in all instances to be preferred to a diagnosis made by deduction from a number of symptoms, but before making an exploration of vulva,

vagina or uterus, let us remember that while these organs are aseptic in a healthy pregnant woman they are no more so after delivery, but on the contrary in a condition particularly disposed to infection. Therefore, thorough asepsis is *conditio sine qua non* whenever we have to bring finger, hand or instrument in contact with the genitals.

Care should be taken in the attempt to disinfect the genitals. If you throw in solutions of boric acid or, as I have seen a young physician do, a teaspoonful of listerin in several pints of water, you may just as well use plain warm water, it is just as effective. Weak solutions of bichlorid of mercury and carbolic acid will not render the parts aseptic; stronger solutions will cause intoxication by absorption. I rely solely upon hydrozone which is as bland as water, non-toxic and yet kills the ordinary pathogenic micro-organisms in a few seconds by oxidation. In this I am sustained by the leading surgeons in this country. In Europe the value of H_2O_2 has not yet been appreciated as much as here, which is probably due to the fact that every druggist prepares the official solution in his little laboratory room, though in reality it requires unusual skill and extensive machinery to make an efficient solution.

A ruptured varicose vessel is best treated by compression with a piece of plain aseptic gauze. In many instances this procedure, if continued for a while will prove sufficient to arrest the hemorrhage. If it does not then we will have to treat it operatively. Hematomata, if any exist, should be excised, that is, the sac should be opened and emptied. Ordinary suturing of the vessel will not suffice, as every insertion of the needle causes a certain amount of bleeding and therefore deep sutures, inserted vertically to the varix, are required to stop the hemorrhage.

The first step in arresting a hemorrhage from carcinoma is to tampon the vagina, cervix or uterus. With the temporary arrest of the hemorrhage however, our work is not completed. Carcinoma in pregnancy is so rapidly fatal that radical measures have to be taken to save the life of the woman. Where the vagina is but little involved excision or curettage may suffice. In the latter stages of pregnancy, when we have reason to believe that the child is capable of life, artificial labor should be induced before performing hysterectomy. Whether we should operate per vaginam or make laparotomy depends entirely on a variety of circumstances with which every surgeon is familiar and which vary in every case. I have nothing new to suggest in the treatment of threatened or completed abortion, the management of which is clearly outlined in every standard text-book.

In hemorrhages due to placenta previa rest and opiates are to be first tried. But not too much time should be spent with either. If they prove inefficient we must proceed to tampon the vagina, which will promptly arrest the hemorrhage. By this means as well as by the loss of blood artificial labor is frequently induced. With the commencement of labor more placenta is detached and the opened uterine vessels, unable to contract, bleed more profusely. Naturally, with the rupture of the bag of waters and speedy delivery of the fetus all would be well, but unfortunately, this does not always occur. Braxton-Hicks' version in malpositions of the fetus is the remedy *par excellence* but should never be practiced unless there be sufficient dilatation of the os, because otherwise we are apt to lacerate it. The renewed hemorrhage which such a laceration causes might prove fatal to the already exhausted woman. To cause sufficient dilatation of the os, I know of no better means than the introduction into the uterus of a previously sterilized colpeurynter after rupturing the bag of waters. When the filled colpeurynter is expelled into the vagina the dilatation obtained is sufficient to permit of the execution of Braxton-Hicks' version safely. As long as the colpeurynter lies in the uterus it acts also indirectly as a hemostatic by pressing the placenta against the uterine wall.

Immediate delivery is the only rational treatment of premature detachment of the normally situated placenta. The uterus only should be dilated by colpeurysis or other mechanical means, hot douches administered to excite pains, then rupture of the bag of waters takes place and either instrumental or spontaneous delivery follows. No time should be lost if we want to save the life of the mother—the life of the child can not be considered. If for any reason delivery can not be accomplished, Cæsarean section may be strongly considered and executed.

Perineal, vaginal or cervical lacerations producing more or less severe hemorrhages, must be immediately repaired by suturing, taking care to coapt the wound surfaces properly.

If pathologic hemorrhage is not due to lacerations then atony of the uterus is the cause. Insufficient contraction of the uterus may be due to over-exertion of the muscle after prolonged and hard labor or unusua pressure, frequently also to a full bladder. We should, therefore first catheterize the bladder and then attemp to cause contractions by systematic friction of the fundus with the full hand. If we succeed in causing contraction and the hemorrhage still exists, Credé's expression of the placenta should be practiced. Failing in this we may inject strychnin, administer a vaginal douche and try friction and expression; again failing in this the placenta should be removed manually, under due antiseptic precautions. The introduction of the hand into the uterus will often excite strong contractions. But in spite of the manual removal of the placenta, contractions may fail to appear, causing dangerous hemorrhage. This also happens after spontaneous expulsion of the placenta. In such cases ergot is indicated; 3.7 or 7.4 c.c. of a reliable fluid extract, preferably of the non-irritant preparation ergotole, should be injected hypodermically, followed by hot intra-uterine irrigation. Failing with these methods, there remains but one thing to be done—tamponing of the uterine cavity with aseptic gauze, which may also be first soaked in a chlorid of iron or, better still, peroxid of hydrogen solution.

Rupture of the uterus means laparotomy or death.

I can not conclude my paper without a few words in regard to the treatment of the acute anemia which obstetric hemorrhages usually cause. We have arrested the hemorrhage but our duty does not cease there, for the acute anemia may prove fatal. Besides the usual stimulants such as strychnin, nitroglycerin, amyl nitrite, camphorated ether, strong coffee, alcohol and milk, heat should be applied all over the body, while the patient lies with the head low and the body and lower extremities high. Auto-transfusion by means of an elastic bandage around legs is to be rejected on account of the possibility of embolism from old varices. Direct transfusion is desirable, though a complicated procedure not easily carried out in every instance. But no woman should be allowed

to die without the intravenous or at least intracellular injection of normal saline solution. The injection in a vein is better but requires skill. Every physician working aseptically can, however, thrust a needle emptied of air into the subclavicular region. A pint can be injected in this way every fifteen minutes and no harm will result. Although the lost red blood corpuscles can not be replaced by the saline solution, the value is apparent in many other directions, and as it is a very simple procedure it should be practiced in every case of hemorrhage, obstetric, surgical or otherwise. The normal salt solution I employ is a sterilized 0.6 per cent. solution of sodium chlorid (c. p.). I keep several pints on hand. When needed the bottle is placed in hot water until the solution reaches a temperature of about 102 degrees.

When injecting in the subclavicular region a tumor is soon formed, which can be caused to be absorbed by gentle massage.

A CLINICAL STUDY IN PELVIC MASSAGE.

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The purpose and scope of this paper is not to discuss the merits or demerits of pelvic massage. This is a matter which will necessarily follow the adoption of any new treatment, and especially one that is in any way open to objection. At the very threshold of this subject it is easy to anticipate the objections which are likely to be raised relative to the handling of organs and tissues which are the local seat of sexuality and passion. Yet that liberality which characterizes the true physician and surgeon will always seek to find the level by which any new treatment can be taken.

Therefore, it is not for any one to emphasize or declare the status of a treatment which must be judged entirely upon those results which accrue from its practical application. Accordingly, this paper will not only deal with the positive but with the negative results, the basis of which is the record of some fifty cases covering a period of almost one year.

This particular study of pelvic massage was at the suggestion of Dr. Charles B. Penrose, who proposed a trial of this treatment in the out-door department of the Gynecean Hospital. A graduate nurse was secured who had given her time to the study of this particular massage, under the tutorship of a pupil direct from Brandt of Sweden.

Twenty of these cases were undeveloped infantile conditions of the pelvic organs, especially of the uterus, with those symptoms which characterize more or less such a condition; scanty and painful menses, often irregular and mostly attended by those nervous reflex manifestations which make these cases among the saddest and most unsatisfactory that can be met with.

Case 1.—Miss D., aged 24 years; puberty at 16; menses very scanty, lasting only a few hours, attended with severe central abdominal pain, also intense low down backache. Flushes of heat, headache, more or less mental depression and constant worry; bowels constipated. This embraces the history since puberty with the exception that her menses, which are less frequent, are attended with more pain. Examination revealed a small infantile uterus. It was impossible to palpate the ovaries; otherwise negative.

Pelvic massage was advised and the first treatment given September 19, lasting fifteen minutes. A treatment again on September 22, 24, 26, 28, October 1, 3 and 6, period coming on the next day, October 7, lasting two full days, then stopped. Treatment was resumed October 11, when she again commenced to flow and continued for twenty-four hours. She had more flow and much less pain than ever before during any single period. Second period came on November 4, lasting until November 6, and returned November 9, lasting twenty-four hours. She had more flow and it was a better color. Third period December 2, lasting until December 3, returned on December 6, lasting two days, attended with less pain and more flow than at any other past menstruation. Fourth period January 1, lasting for three days with no pain, more flow and lasted longer than any period heretofore. During these months the treatments were continued every third day. An examination in January showed the uterus to be larger in every direction and more fully developed.

These treatments were omitted in January, a request made to the patient to call once a month; this she failed to do and I did not see her until the first of May, when she was again examined and everything found satisfactory. The history since has been normal as to time, lasting three days with no pain worth speaking of.

Case 2.—Mrs. B., aged 35 years; puberty at 15; scanty, painful menstruation; married three years, sterile. Examination showed small undeveloped uterus, ovaries not palpated; pelvic massage advised. First treatment September 22 for fifteen minutes; September 24, 26, 28, 30, October 2, 6 and 9, menses appearing on this day, scanty, less pain and lasting five days. Second menses November 12; had pain and cramps; dark-colored clots and very offensive. Third period December 14, lasting five full days; free flow and no pain or discomfort.

These treatments were continued every third day in this case.

At the expiration of four months an examination showed a marked improvement and a better development of the uterus in every direction. This patient in March was free from all symptoms.

The third case illustrates that principle which has no exception, that certain lines of treatment may cure some cases and not others.

Case 3.—Annie W., aged 18 years; puberty at 17; always had irregular, painful, scanty menstruation. Examination showed infantile condition of the uterus; ovaries not palpable. After seven treatments the menses appeared with severe cramp-like pains. Second period did not appear for two months; she had more flow than at previous menstruation, the pain being a trifle less. The treatments in the meantime were continued every third day. After six months there was little change so far as her symptoms were concerned. Upon examination there was a decided improvement in the development of her uterus.

These three will give in a general way the results so far as the twenty individual cases are concerned, and so far as this particular condition is present, probably two out of three are much improved; the other third, so far as their symptoms, no better. In all these cases, after two or three months treatment there was improvement in the local condition or development.

The next series of cases embraces five patients on whom celiotomy was done, four of these for removal of the appendages, one a hysterectomy; all of these returned with severe pain in lower abdomen. The cases in which the appendages were removed referred their pains largely to the ovarian region, either one or both sides. Several of these were known as our regulars, having been coming almost every three or four days for a year; no doubt feeling as many of these patients do, that they are the wards of the hospital in which they have been operated on.

The history of several of these cases is as follows:

Mrs. H., removal of both ovaries for tubo-ovarian abscesses, one year previous. Pain in both ovarian regions, especially on the right side. Both stumps were found to be tender, so much so that she would cry out with pain upon the slightest pressure over this region. Having exhausted all resources, both local and otherwise, pelvic massage of twenty minutes séance every third day was advised. The patient was much better after the fourth treatment, and after a dozen treatments all tenderness and soreness had disappeared.

Mrs. W., the hysterectomy case, was operated on eighteen months ago for commencing malignant disease of the fundus and had been a frequent visitor at the dispensary, complaining of severe pain and soreness all over lower abdomen. Examination revealed tenderness and soreness throughout the pelvis,

otherwise everything normal. Physiologic senile changes were apparent. As a last resort pelvic massage was advised and at this date she has only had six treatments. The tenderness and soreness is slowly but surely disappearing.

The other three patients, like so many dispensary cases, drop out if they feel a little better. Neither of these had over three or four treatments and we know little as to the result so far as they are concerned; one of them reported and said she was well.

Another interesting case in this group was Mrs. R., aged 27 years, married three years, sterile, complaining of severe pain on sexual connection, so much so that she has become melancholy and unhappy because of her inability to discharge the marital relations satisfactorily to herself or husband. The uterus was found sharply anteflexed, with great tenderness over the uterosacral ligaments; otherwise negative. This patient gave a history of having had a dilatation of the cervix, pessaries and all sorts of treatment. Pelvic massage was advised as a last resort and as an experiment. After a dozen treatments of twenty minutes duration every third day this patient reported for examination, when all tenderness had disappeared and the marital relations were most satisfactory.

In a summary of the results obtained thus far from pelvic massage at the Gynecean Hospital, there can be no hesitancy in stating that in selected cases of undeveloped infantile conditions of the pelvic organs it deserves first consideration. There may be cases of this class in which, from a moral standpoint, it would be better not to advise it; but to condemn a treatment which offers prospective good simply because there is an occasional one whose perversity or frowardness would be against its use is, to say the least, contrary to that liberality of medical men who have always accepted those truths which are founded on practical results.

In tender stumps, after removal of the appendages, and indeed after all surgical measures for inflammatory or chronic pelvic disease, where there remains a certain tenderness with or without adhesions, provided sufficient time has elapsed to overcome these conditions, which would contraindicate massage anywhere, it offers a promising field.

In old exudates, the result of pelvic cellulitis, etc., it is worth a trial. In one instance, good results were obtained where all other measures failed. In anteflexion with tender uterosacral ligaments, or in any general pelvic tenderness without inflammatory pathologic conditions and associated, as many of these cases are, with painful coitus, pelvic massage offers the most promising results, as three of these cases have verified.

In the cicatricial tenderness which sometimes follows plastic operations, it acted very satisfactorily in one case.

In simple uncomplicated endometritis it only increased the leucorrhea and appeared to do more harm than good.

In subinvolution complicated, as these cases mostly are, by endometritis, it increased the discharge, aggravating the endometrial condition, which continued the subinvolution.

In retroversion, with or without adhesions, it gave negative results; and in one instance where there were firm adhesions, uterus fixed, it greatly increased the lumbosacral pains as well as other reflex symptoms.

In fibroid conditions it stimulated them to more rapid growth, and increased the menstrual and intramenstrual discharge.

In tubo-ovarian disease, chronic or inflammatory, or any inflammation about the appendages, it is capable of doing much harm.

One important point noticed in most of these cases was that the massage increased intestinal peristalsis, and produced a regularity of the bowels which was unknown to most of these patients without large doses of cathartic medicines.

It is to be regretted that sufficient time has not elapsed to speak advisedly as to ther eliability of this treatment in sterility. But it is not too much to say that the satisfactory increase in the condition of the organs dependent upon pregnancy has been such as to give us encouragement in this unfortunate condition. One of these cases, in which sterility has existed and in whom there is marked improvement in the development of the uterus and regularity of the menses, has missed one menstrual period, associated with other signs of early pregnancy.

It has been noticed that, in a number of these cases, there was a concomitant condition of hemorrhoids, which were relieved in every instance. Whether this was due to the increased intestinal peristalsis producing a normal action of the bowels, or by stimulating these veins to greater activity, as well as the increased cellular changes taking place in the infiltrated connective tissue surrounding the rectal veins incident to the massage, is a question to be answered only in a further study of its value in this condition.

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FORMALDEHYDE AS A PRACTICAL DISINFECTANT.

Read before the Johnson County Medical Society, Sept. 8, 1897.

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The study of disinfectants and disinfection is of interest to all who are concerned in the preservation of public health. Recent years have afforded the means of placing this study upon more of a reliable and scientific basis. Frequent observation has noted the fact that although a certain disinfectant may be possessed of active germicidal properties in the laboratory, where it can generally be brought in direct contact with the microbe, it often fails signally when applied on a larger scale or for practical purposes.

Recently formaldehyde has been brought forward with considerable enthusiasm as a disinfecting agent, and the series of experiments embodied in this paper were directed toward determining to a certain extent its utility in this respect. In connection with a cursory review of the existing literature on the subject, an effort has been made to draw into comparison the several agents and substances heretofore used more prominently. Formaldehyde (formal, formalin) is the aldehyde of methylic or wood alcohol and appears on the market as an aqueous solution representing 40 per cent. of the gas. For some time it has been known to the biologist and the pathologist as a fixing, hardening and preservative agent of superior value. Since 1888 its germicidal properties have been recognized and of late have had extensive practical application. As a disinfectant it is used in three forms; aqueous solution, moist vapor and pure gaseous state. In the liquid form the standard 40 per cent. solution can be diluted to varying strengths and the dilutions as generally expressed refer to the commercial formaldehyde rather than to the pure gas itself.

To determine its germicidal properties a number of tests were made with the organisms bacillus anthracis (sporing) and staphylococcus pyogenes aureus. Addition of formaldehyde was made to bouillon tubes

in strengths of 1 to 3000, 1 to 2000, 1 to 800, 1 to 500, 1 to 200 and 1 to 100, inoculated from virulent cultures of above-named organisms showed no growth in any case, control cultures being made in every instance. Addition of formaldehyde to virulent bouillon cultures produced death of the organisms in ten and fifteen minutes, and subsequent sub-cultures showed no growth. It would seem from this that solutions of 1 to 200, 1 to 500 and 1 to 1000 would be appropriate for disinfecting surgical instruments. Scalpels left in these solutions as long as twenty-four hours showed no tarnish or apparent change in the cutting edge.

As a deodorant I have found solutions of 1 per cent. effective in removing all vestige of odors from putrefying meat. Dr. K. Walker[1] has sterilized and removed all odor from feces by a 10 per cent. solution in ten minutes. Disinfection by means of moist vapor, while highly effective in a small amount of space, has not been proportionately successful when applied to a larger area.

The vapor of formaldehyde is produced by saturating cotton or cloth with a 40 per cent. solution, placing it in a shallow dish and covering all with a bell jar; infected substances exposed to this vapor are sterilized in short time. The experiments of J. J. Kinyoun[2] show that cover slips spread with staphylococcus pyogenes aureus, bacillus diphtheriæ, bacillus typhosus and sporing bacillus anthracis were destroyed in ten minutes. In applying this method to large areas the difficulty of so arranging the evaporation as to reach all parts of the room and the rather slow diffusion of the moist vapor has retarded the adoption of this method on a more extensive scale.

Formaldehyde in the pure gaseous state has shown itself to be by far the more satisfactory agent for the disinfection of rooms and wards. The gas is produced in two ways: 1, by generation from wood alcohol; 2, by the heating of commercial formaldehyde in an autoclave or special boiler to three or four atmospheres pressure and then allowing the gas to escape. The first procedure being carried on by means of lamps or generators, of which there are a number of different kinds in use; the Tollens, Gambier and Krell type prevailing in Europe, while the Hollister and Moffatt generators are being extensively introduced by their respective makers in this country. Two sizes of the Hollister lamp are manufactured, being designated respectively as No. 1 and No. 2, the first having a capacity of one quart of wood alcohol, converting the same into formaldehyde gas in twenty-four hours, while the No. 2 generator holds four quarts and uses up the contents in twenty hours. To operate, the platinum decomposing gauze is heated to redness, after which it is placed in the dome opening where sufficient heat is generated by the decomposition of the mixture of methylic vapor and air as it comes in contact with the gauze, to maintain the incandescence, which is kept up until all the alcohol has been converted.

The first tests were made with the No. 1 generator in a room 12 by 13 by 14 feet, capacity 2184 cubic feet, in which were two windows and one door, with very little leakage.

Test objects.	Exposure, 16 hours.	Exposure, 24 hours.
Cover slips spread with B. anthracis Staphylococcus pyogenes aureus B. diphtheriæ B. of typhoid	Growth in bouillon after 24 hours' incubation.	Growth after 48 hours' incubation.

Control cultures were made in each case to test the vitality of the organisms.

Test objects.	Exposure, 16 hours.	Exposure, 24 hours.
Gauze and cotton infected with pus from surgical kidney	Growth after 24 hours' incubation.	Growth upon agar plates after 48 hrs. permitted separation of staphylococcus pyog. aureus and bacillus coli communis.

The last-named infected objects were placed in different parts of the room, one piece being suspended three feet above the lamps.

Disinfection was negative and the conclusion drawn that the space was too large for the size of the generator, so the next tests were made in a smaller room, having the dimensions of 7 by 8 by 10½ feet, or 588 cubic feet.

Test objects.	Exposure, 17 hours.	
	After 24 hours' incubation.	After 72 hours' incubation.
Cotton infected with Staphylococcus pyogenes aureus	No growth.	No growth.
Cover slips spread with Staphylococcus pyogenes aureus	No growth.	No growth.
Bacillus anthracis (sporing)	No growth.	Growth.
Bacillus of typhoid	No growth.	No growth.
Bacillus diphtheriæ	No growth.	No growth.
Bacillus mallei	No growth.	No growth.
Cover slips spread with Staphylococcus pyogenes aureus, Bacillus of typhoid, Bacillus diphtheriæ (wrapped in four layers of towel)	Growth.	Growth.

Agar plates inoculated with the following.	After exposure agar tubes were inoculated from the plates and with them placed in the incubator.	
	Exposure, 14 hours.	Exposure, 21 hours.
	72 hours' incubation.	72 hours' incubation.
Bac. anthracis.	No growth on plates. Growth on agar sub-culture tubes.	No growth on plates. Growth on agar sub-culture tubes.
Bac. diphtheriæ	No growth on plates. No growth on agar sub-culture.	No growth on plates. No growth on agar sub-culture.
Staphylococcus pyogenes aureus	No growth on plates. No growth on agar sub-culture.	No growth. No growth.

A second lamp, No. 1, was placed in the room and one test made while using two lamps, as follows:

Test objects.	Exposure, 15 hours.	Exposure, 21 hours.
	72 hours incubation.	72 hours' incubation.
Cover slips spread with B. anthracis.	Growth.	Growth.
B. diphtheriæ.	No growth.	No growth.

Disinfection was accomplished in all instances with the exception of the active sporing organism of anthrax and wherever any slight concealment of the test objects was made. The last series of tests with the No. 1 generator were made in a very small space in order to determine its utility for surgical sterilizing purposes. Ths sterilizing chamber used for the purpose was made from an old metal hot air sterilizer, the lamp being placed under it and the chimney passing through an opening cut out to fit the same. Dimensions of the sterilizer, 13 by 17 by 12 inches.

Test objects.	Exposure 10 min.	Exposure 15 min.	Exposure 20 min.	Exposure 30 min.
Gauze soaked in bouillon culture of				
Staphylococcus pyog. aur.	Growth.	No growth.	No growth.	No growth.
Bacillus of typhoid	Growth.	. . . . .	No growth.	No growth.
Bacillus diphtheriæ	Growth.	. . . . .	No growth.	No growth.
Bacillus anthracis	Growth.	. . . . .	Growth.	Growth.
Staphylococcus pyog. aureus (wrapp'd in four layers of apron)	. . . . .	. . . . .	. . . . .	Growth.
B. of typhoid (wrapp'd in four layers of apron)	. . . . .	. . . . .	. . . . .	Growth.
B. diphtheriæ (wrapp'd in four layers of apron)	. . . . .	. . . . .	. . . . .	No growth.
Ligatures soaked in bouillon culture of				
Staphylococcus pyog. aur.	. . . . .	Growth.	. . . . .	No growth.
Bacillus diphtheriæ	. . . . .	Growth.	. . . . .	No growth.
Covers spread with				
Staphylococcus pyog. aur.	Growth.	Growth.	. . . . .	No growth.
Bacillus diphtheriæ	Growth.	No growth.	. . . . .	No growth.
Bacillus mallei	Growth.	Growth.	. . . . .	No growth.
Bacillus anthracis	Growth.	Growth.	. . . . .	Growth.

In the last-named tests the same difficulty seems to present itself of the lack of penetration of the gas, which is such an important requisite in surgical sterilization.

For further experiments in room disinfection the No. 2 generator was applied. Room 12 by 13½ by 14 feet; 2184 cubic feet.

Test objects.		Exposure, 20 hours.
Covers spread with		
Bacillus of typhoid		No growth.
Bacillus diphtheriæ		No growth.
Staphylococcus pyog. aur.	concealed by five layers of apron.	Growth.
Bacillus of typhoid		Growth.
Bacillus diphtheriæ		Growth.
Bacillus pyocyaneus		Growth.
Gauze soaked in bouillon culture of		
Bacillus anthracis		No growth.
Staphylococcus pyogenes aureus		No growth.
Bacillus anthracis concealed by two layers of towel		Growth.

Room 12 by 11 by 26 feet; 3498 cubic feet.

Test objects.	Exposure, 20 hours.
Covers spread with	
Bacillus anthracis	Growth.
Bacillus diphtheriæ	No growth.
Bacillus pyocaneus	No growth.
Gauze soaked in bouillon culture of	
Bacillus diphtheriæ	No growth.
Staphylococcus pyogenes aureus	No growth.
Covers spread with	
Bacillus of typhoid	Growth.
Staphylococcus pyogenes aureus, concealed in the inside of a coat	Growth.

The second method of generating the aldehyde gas, introduced by Trillat, consists in the use of an autoclave or special boiler. The form of autoclave devised by Trillat[3] is slightly different from the one ordinarily used for sterilizing purposes, with superheated steam. The autoclave used in connection with the following experiments is of the Rohrbeck (Berlin) type and was formerly used in the laboratory for sterilizing work. The formaldehyde, 40 per cent. solution, is placed in the copper container, with the addition of a neutral salt, such as chlorid of calcium in the proportion of 4 to 5 per cent., the heat is applied from below, the cover being fastened down firmly; when the manometer indicates a pressure of three and one-half to four atmospheres the escape tube is opened and the gas issues forth, as a dry vapor, with remarkable force and diffuses very rapidly throughout the room. The autoclave may be operated in the room that is to be disinfected, or it can be placed on the outside and the gas conducted by means of a connecting metal or rubber tube through the keyhole or opening made in the door for the purpose. The last-named way is decidedly preferable for the operator, as the irritating inhalation of the gas is avoided. Test No. 1. Room 588 cubic feet, autoclave in the room, 300 c.c. of formaldehyde used.

Test objects.		Exposure, 12 hours.
Covers spread with		
Staphylococcus pyogenes aureus		No growth.
Bacillus anthracis		No growth.
Bacillus diphtheriæ		No growth.
Staphylococcus pyog. aur.	concealed by 4 layers of towel.	No growth.
Bacillus diphtheriæ		No growth.
Bacillus of typhoid		No growth.

Test No. 2.—Room 3498 cubic feet, autoclave operated from the outside, one liter of formaldehyde solution used.

Test objects.		Exposure, 20 hours.
Covers spread with		
Bacillus diphtheriæ		No growth.
Bacillus of typhoid		No growth.
Bacillus of plague or pest		No growth.
Bacillus anthracis		Growth.
Staphylococcus pyogenes aureus		No growth.
Bacillus mallei	covered by five layers of towel.	Growth.
Staphylococcus pyog. aur.		Growth.
Bacillus of typhoid		Very faint growth.
Bacillus diphtheriæ		Very faint growth.
Bacillus anthracis		Growth.
Bacillus of pest		No growth.

In connection with these different tests, auxiliary observations are noted, illustrative of the various properties of formaldehyde and having direct bearing on its power as a disinfectant. Pieces of cloth stained with fuchsin were changed to a violet or purple color by exposure to the aldehyde. Egg albumin is slowly coagulated. Small cubes of gelatin are rendered insoluble in warm and hot water. When larger blocks of gelatin stained red by the addition of a few drops of fuchsin solution were cut open, the depth to which the change in color to violet or purple extended served as an indicator of the penetrating power of the aldehyde.

The gas as evolved is of an intensely irritating character, especially so to mucous membranes, yet when given an opportunity to escape, the room becomes habitable in a very short time. After the disinfection of rooms and apartments the atmosphere is now generally neutralized by means of ammonia vapor. Trillat[4] and G. Roux found that guinea pigs exposed for twenty-four hours to a saturated atmosphere, neutralized as afore mentioned, suffered no ill effects.

An analysis of the air made in a room adjoining the largest one used in these experiments, gave a result of 2,600,000 bacteria to the cubic meter, while in the room of 3498 cubic feet, after an exposure of twenty hours (Generator No. 2), the examination revealed 1260 bacteria to the cubic meter. In the experiments of Trillat and Roux an analysis of the air showed a complete sterilization with the autoclave method, but a small number always retained their vitality after the use of the methylic-alcohol aldehyde generators. These same observers found that, in the examination of the dust, the samples collected from the walls gave no growth, while in the scrapings taken from the floor a certain number of bacteria developed after the use of either method. It was further noted that the larger collections of dust produced a cloudiness in bouillon sooner and more frequently than the

smaller or finer particles. Moist dust was also found to be more difficult to sterilize than when in the dry state, all of which tends to illustrate, to a certain extent, the penetrative power of formaldehyde.

The foregoing personal experiments seem to confine success in sterilization to superficial objects. Wherever an attempt was made at concealment of any degree, the result was in all instances negative. This agrees with the experience of Trillat and G. Roux, Bosc,[2] Vaillard and Lemoine,[6] Pfuhl[7] and Ascoli. The results obtained are commensurate with the size of lamp or apparatus, that is, the amount of aldehyde gas generated and the size of the room. As to the amount of gas necessary for thorough sterilization this seems rather difficult to determine with any degree of exactness.

In generating the gas from methyl alcohol. Pfuhl has estimated the amount of wood alcohol to be used for every cubic meter as follows: bacillus of typhoid, sterilized by 47.1 grams; bacillus of diphtheria, sterilized by 21.2 grams; staphylococcus pyognes aureus, sterilized by 62.8 grams; bacillus of anthrax spores, not by 94.1 grams; bacillus of tetanus spores, not by 94.1 grams. Taking these figures as a guide it would require not less than 2 liters of wood alcohol for 1000 cubic feet of space.

In the autoclave method where the 40 per cent. formaldehyde solution is used, Paul Struver[8] places the required amount at 8.2 centimeters of formaldehyde (40 per cent.) for each cubic meter (35.28 cubic feet), while the Marine-Hospital Service Circular No. 121 fixes the same at 14.+ c.c. per cubic meter. With these standards accepted the negative results obtained in the above named tests would be explained.

The conclusions naturally drawn from the results must be that small generators or lamps, such as the No. 1 Hollister and others of similar type, are not adapted for room sterilization, and should be confined to use in very small areas of space. The No. 2 generator, having a capacity of 4 quarts of methyl alcohol, should only be used for room sterilization, and then I would place the limit at 2000 to 2500 cubic feet; if larger space is to be disinfected, more lamps should be added in proportion.

Articles in the room should be exposed freely, clothing spread about, pockets turned inside out, and all concealment avoided as much as possible.

The cheapness and the little attention required in producing formaldehyde gas from wood alcohol, renders this method very desirable, but the use of the several forms of apparatus so far proposed is attended by quite a number of defects, which are mainly due to the fact that the slow conversion of the alcohol allows the gas to escape through the many crevices and openings necessarily found in every room, before it has had an opportunity to penetrate into the depths of substances contained in the apartment. The latter difficulty is overcome to a certain extent by the autoclave method of generating the gas; the reports of its use are certainly more promising. The rather high cost of the apparatus will interfere somewhat with its general introduction, but by this method the gas escapes under a high pressure and in corresponding larger amount, the diffusion is more rapid and sterilization, in consequence, more complete.

In the recent able article of Doty,[9] on "Disinfection by Steam," the virtues of this agent are brought forward most forcibly, corroborating what has been known heretofore of its effective power when used on a smaller scale; and although here, also, expense enters as an important item, there can be no question that in penetrative power, rapidity of action and especially in the sterilization of linen, blankets, bedding, etc, steam can not be displaced by formaldehyde. All observers concede the superiority of formaldehyde gas over sulphurous oxid for room disinfection.

As a sterilizing agent for surgical purposes, an alcohol gas generator may be used, when confined to space not exceeding two and one-half cubic feet, and used for instruments only, with an exposure of at least thirty minutes, for I question the practicability of its use for sterilizing sheets, towels, gauzes or dressings of any kind. Used in solutions of 1 to 200, to 1 to 500 it forms a most efficient agent for the disinfection of instruments, and is superior to carbolic acid or corrosive sublimate, having no injurious effects, nor is it disagreeable to the hands of the operator. As a deodorant and disinfectant for general purposes, when used in solution, it has no equal.

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THE LIMITATIONS OF FORMALDEHYDE IN DISINFECTION.

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If formaldehyde or formic aldehyde is to be extensively used as a disinfectant, as now seems probable, it is important that the medical profession should know its limitations as well as its power, since either the use of a worthless disinfectant or the improper use of a valuable one is but little removed from a criminal act. Recent experiments indicate that only under certain conditions can we be reasonably sure of destroying pathogenic organisms by means of formaldehyde.

The compound is a gas of which the specific gravity is very nearly that of air. We should expect, therefore, that it would be slow to diffuse where air must be displaced. Pfuhl has shown (*Zeit. für Hygiene*, Vol. XXII, p. 339, Vol. XXIV, p. 289) that where it is present in sufficient quantities it sterilizes the surface of exposed objects, though its penetrating power is small. Similar results have been obtained by other experimenters. It is doubtful, then, whether it will replace other methods of disinfecting bedding, heavy clothing, etc. It has also been experimentally proven that a definite per cent. is necessary in the air to destroy bacterial life. Strüver (*Zeit. für Hygiene*, Vol. XXV, p. 356) places this at 1.6 grams of the gas in 1 cubic meter of space. He has shown too that the ordinary type of lamp used for the generation of formaldehyde by the action of platinum on the vapor of wood alcohol converts only about 8 or 9 per cent. of the latter into formaldehyde (loc. cit.). If a lamp is used for the production of the gas, it must be large enough to furnish the required per cent. to the air of the room. Moreover, since the formaldehyde has the same specific gravity as the air, it will diffuse at the same rate as the air is driven out of the room through the cracks and other openings. In order to be most effective not only must a large amount be generated, but this must be quickly done to prevent diffusion

We can thus explain the failures which have been reported with small lamps. Trillat's method of generating the gas by driving it out of its solution by heating the latter under pressure in an autoclave, avoids the difficulty by setting free the gas very quickly.

Formic aldehyde (CH_2O) is a gas under ordinary conditions, but it may be changed into a solid form. This is called paraformaldehyde or tri-oxymethylen. Its formula is $(CH_2O)_3$ and it may be considered as condensed formaldehyde. It is an imperfectly crystalline substance which is volatilized by heat. The density of the gas thus formed shows that the complex molecule has been decomposed and the simple one, CH_2O, formaldehyde, formed. This method of generating the gas directly from the solid, which takes place at a not high temperature, is likely to prove the most practical means of producing the disinfectant without the use of expensive apparatus as in Trillat's method.

A GLANCE AT SOME RELATIONS OF DENTISTRY TO GENERAL MEDICINE.

Presented to the Section on Stomatology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY GEO. F. EAMES, M.D., D.D.S.
BOSTON, MASS.

The average dentist not only fails to recognize many indications which call for systemic treatment, but fails to see his need of such recognition. He still jumbles medical terms. His practice is largely empirical. He sees in part, but acts as one comprehending all; he gives advice to his fellow practitioners more freely than he would if he knew more.

If a new drug is advertised he tries it a few times, and immediately writes an article on it. He treats all forms of pyorrhea by scraping the teeth, but the deposit continues to accumulate, and the scraping is repeated. He treats sensitive dentine by the application of obtundents, and never dreams of prophylaxis or the correction of the underlying cause.

The teeth under certain conditions decay with great rapidity, and extra dollars are received for extra plugs inserted. The teeth are stained and eroded, only to be met with more plugging, and the mechanical removal of the stain.

During a persistent and alarming hemorrhage from the socket of a tooth, the heart is allowed to go on thumping against the chest wall, thereby resisting the local styptic, and tending to increase the hemorrhage.

It is still true, in too many cases, that a tooth is extracted solely because the patient asks that it be done. Many dentists still ask the patient what kind of filling they will have inserted, little thinking that if in certain cases the request is complied with the dentist may be sued for malpractice.

The dental college with its required three years' course and Latin entrance examinations, still continues to let loose thousands of graduates whose spelling and use of ordinary English is excruciating, and whose understanding of the principles of pathology and medicine is practically *nil*. These go out to practice on humanity.

Shortly after I had begun to study dentistry, I was introduced by my preceptor to a very prominent minister who said, "so this young man is going to learn to haul teeth!" My preceptor wisely answered, "that, among other things." Those "other things" have engaged my attention ever since, and there are and ever will be, other things to follow, for if there is one characteristic of the marvelous advance which dentistry as a profession has made, it is the great number of new relations which have been discovered to exist, not only between it and other branches of medicine and surgery, but relations with the arts and sciences.

It has been said that the dentist's daily work is largely mechanical; many make it so; many see only the mechanical side of it; for example, an operator may be engaged in plugging a large distal cavity with gold, but may not realize the fact that in some cases of nervous susceptibility, the entire organism may sympathize with the local irritation thus produced, to the extent of shock, or nervous collapse. What is the position of the mechanical operator in such a case? In his failure to recognize the vital connection of the teeth with the human organism he has failed to discharge his full duty to the patient, and is guilty of criminal neglect.

A dentist may be called upon at any time to exercise his medical knowledge immediately, in cases of nervous spasm, hysteria, syncope, shock, collapse, foreign bodies swallowed, poisoning, hemorrhage, etc.; or in a more leisurely way in the consideration of questions relating to stomatitis, adenoid vegetations, malignant growths, operations during pregnancy, and the various inflammatory conditions of the dental pulp and pericementum.

But there are other fields which have not been so fully explored, and which are vital to the interests of our profession. Teeth are being lost at an alarming rate on account of the ravages of pyorrhea alveolaris, so called, and this fact alone calls for deep medical research, for a thorough physical examination, including the blood, the salivary and renal secretions, followed by appropriate treatment.

In some of my recent cases the personal history has shown no indications of disease, when an examination of the secretions has shown conclusively the existence of abnormal conditions. This shows the necessity of a thorough examination, without regard to the patient's answers or knowledge of his condition.

In order to do this a most thorough study of the theory and practice of medicine is absolutely required. I can see no other way to meet these pathologic conditions in the mouth, believing as I do that they are the expression of some diathesis or other general disturbance. As medical specialists we are facing the serious problem of saving thousands of teeth which at the present time are being lost in spite of the great advances which our profession has made, and it rests with us, as members of the representative medical body of the United States, to use every means in our power to secure the requirement of a broader general and medical education as one of the essential conditions of graduation. If this be accomplished, the holder is sure of recognition in any medical organization, and the dental profession will stand for one of the most profound and philanthropic agents of the healing art.

Eye Protector.—The *Journal d'Hygiène* of March 10 describes an extension for the eye-glasses of bicyclers, etc., made of celluloid or some similar substance, which clamps over the eye-glass and extends to enclose and fit tight over the entire orbital region, preventing the entrance of dust or wind, although ventilated at the side.

SOCIETY PROCEEDINGS.

Physicians' Club.

Regular meeting held April 4, 1898.

Dr. E. J. DOERING in the Chair.
The subject for discussion was the

PROBLEMS OF ADOLESCENCE.

Prof. JOHN DEWEY of the Chicago University spoke on the

PSYCHOLOGY OF ADOLESCENCE.

He confined his remarks chiefly to some of the more commonplace aspects of the normal psychology. He considered adolescence as a normal manifestation in the development of life, and that the bulk of things which accompanied it should be regarded as normal, however excited or disturbed the individual might be at the time. He said a good deal of work has been done in recent years in the study of some of the details of the psychology of adolescence, from which many facts have been established. Reference was made to the theory of the emotional changes advanced by a Danish psychologist. The emotional changes which took place were marked characteristics of the psychology of adolescence. The physical changes that were going on made themselves felt throughout the entire organs. The nutritive changes were very marked during the oncoming of puberty. At this time there were many new sensations, especially organic sensations. These organic changes accompanied a physiologic reconstruction of the individual in his attitude toward others and formed a physical basis and stimulus for the immense emotional and intellectual changes accompanying the emotions. There could be little doubt as to the intellectual changes which took place, in which the individual brought to account the changes in his sensations and emotions. He felt differently. He felt more emotional toward others. A change was induced in the current of his thought, and it was necessary to bring his thoughts into harmony with the great flood of new sensations and feelings which were pouring in upon him.

Dr. M. P. HATFIELD discussed

THE PHYSICAL PENALTIES OF ADOLESCENCE,

in which he made an eloquent plea for greater development of the physical side of the individual during this period. He was compelled to confess that the London *Lancet* did not do a reckless thing when it offered a prize of £100 to anyone who could bring into its office a child whose ancestors had for two previous generations resided consecutively in the city of London. A third generation child could not be shown in Chicago for chronologic reasons. President Eliot of Harvard had said that "the future of the American child depends on getting out of the city into the country during the summer." If this was a fact what was to become of the majority of the children in Chicago? What chance was there for growth, for flowering, for blossoming, because adolescence in its best and highest form was a blossoming of perfect beauty. He believes that every child born into the world has an inalienable right to clean, warm clothes and proper food. It ought to come from the parents or State or from somewhere. Dr. Hatfield then spoke of the necessity of city children having more sunlight, purer air and, if possible, more healthful and hygienic surroundings.

THE ETHICS OF ADOLESCENCE.

WILLIAM M. SALTER—The meaning of the phrase is, I suppose, how shall we treat adolescence? For adolescence is a fact, a natural fact and does not admit of regulation itself. But we can decide how we shall treat it. The nature of this great change and some of the dangers connected with it have already been described. I have thought perhaps it might be best for me to take up or suggest one way of meeting one danger. The danger I have in mind is the familiar one, that the peculiar physical impulses and passions that arise in boys and girls at this time shall run away with them. The question is, how shall we meet it? The policy of many, perhaps of most, seems to be to ignore the subject. There are so many difficulties and embarrassments in dealing with it that most parents and teachers prefer to let it alone. They don't know what to say. Possibly they think it is a subject over which there ought to be a veil. They are not quite sure that these are proper things to talk about with children any more than for people to talk about with one another. And so they do little more than trust and hope, not without anxiety sometimes, that things will come out well. I suppose that it is in this happy-go lucky way that most children are brought up; we think they can't do much worse than their fathers and mothers did.

A second way is simply to say that certain things are wrong, to command or forbid, without explanation. On occasion those most reluctant to refer to the subject may be obliged to go as far as this. They rest their appeal on authority, adding perhaps invisible authority. They think children ought to obey and ask no questions. It should be enough for them to know that such and such things are proper, are what good children do, that other things are shameful. I would not ignore the sphere of authority or undervalue obedience. I think it is a good habit, but I think gradually the reason for all obedience should be made known and children learn to be self-directing.

A third course is to take the children into our confidence. Children often ask the question where they come from, sometimes at a very early age. I saw a father who was troubled by questions of this sort from a 4-year-old. Ordinarily we evade the question or tell some pretty myth. I would suggest the advisability of dealing more fairly and frankly. I believe that in general it is well to give the children the natural explanation of events, not that I object to the stories and myths that are often told, but I think they should be told as stories, and that when a child is serious and wants to know the real explanation, the real explanation should be given. I don't believe in tricking or fooling children, and I think that the reaction on their own nature is bad. So with a child's question as to where life comes from. I would suggest giving up to the measure of the child's capacity of receiving (and that is determined largely by the extent of its questioning, of its unsatisfied curiosity) and understanding of the elementary truths of biology, in making it see that the human species is but one branch of the great tree of life. In simple language I would point out that there is nothing peculiar in the way human beings are born. Every living thing has seed somewhere on it or in it, and each successive living thing in turn comes from a seed. A plant was once a little seed, and so with the biggest kind of tree, and so was a bird, or a horse, or a man. Everything starts from beginnings so small that they are hardly visible, and the beginnings are always in the body of the parent. Every seed is at first nourished, protected there until it is far enough on to have a life of its own, and its leaving the body of the parent is what we call (at least in the case of most animals and of men) birth. Every little boy or girl was once born; before that it was carried and fed and kept out of harm's way in its mother's body; since, it has been out in the light of day and is learning, or should be, ever more and more to care for itself. Moreover, I would explain that seeds no not always grow of themselves. Two of them, we may say, for I need not stop here to make fine distinctions, ordinarily unite and become one, before either comes to anything. Sometimes the two seeds are in the same body; most commonly they are in two separate bodies, but they have to come together for either to really live and grow. So of the same sort of being there are what we call the male and female, each having its own kind of seed; but both are necessary, and the two must come together that any seed may grow and become in time a fish or a bird, or a human being. And so I would say to a child, we have fathers and mothers in the world, and among men we call fathers and mothers husbands and wives, because they live with one another and stay by one another and take care of one another, and at the same time take care of the children born to them.

In some simple, unsentimental, matter-of-fact way like this I should answer the child's question as to where he or his baby brother or sister comes from. I say I; I mean the parent or trusted teacher. Making a mystery of the matter is the last thing I should do, for unsatisfied curiosity easily makes one morbid and as a matter of fact, owing to the thoughtlessness and prudishness that are so common, there are probably more morbid boys and girls and morbid men and women on this subject than on almost any other under the sun. I would have this information given to a questioning child long before that critical age when the child is passing into manhood or womanhood, and new thoughts and feelings are stirred and new temptations naturally encountered. Before the passions arise let this information be given in a cool, scientific, perfectly objective manner, and much of the danger of this transitional time may be avoided. I know that well-meaning people sometimes deprecate curiosity on this point. They speak of an "improper opening of children's minds." They seem to almost regard it as another sign of children's natural depravity. But the depravity, I fear, lies elsewhere. Why is this an improper subject? Why is it not as sweet and clean as any other? Why is not birth a holy thing, and motherhood and fatherhood an equally holy thing? Reverence for a thing and a sense of its uncleanness are, it seems to me, incompatible feelings. I plead for a healthy, natural reverence for this sacred relation of life, and real reverence is based only on knowledge and understanding. And those who can not bear

to talk of this subject to their children should not forget one thing, that there are those who are quite ready to talk about it (though it be in whispers and on the sly), and that a normally constituted boy or girl is apt to get some sort of a notion of the truth, even though a distorted one. If we do not give the information in open, honorable fashion, it will be got in ways that are dark and disgraceful. An educator, after saying that this knowledge exists in two forms, the one "scientific, true and clean," and the other "morbid, false and dirty," adds a fearful statement that at least nineteen-twentieths of American children draw their information from the latter sort of knowledge. In back alleys, he says, on the way to school, in the servants' rooms, or from an older comrade they master this forbidden lore. Whose fault is it? I don't wish to bring any railing accusations, and I know how helpless and confused many parents feel, and yet I think the evil is more to be traced to the ignorance and prudishness, the mental and moral incapacity of the average parent than to any other cause. Parenthood is a task, I might say it is a profession, and one should bring one's wits and all the wide-awake sympathy and loving thought one can command to the discharge of its high and sacred duties.

In a word, I would have children understand life, then the law of life. The law of individual conduct follows as a matter of course. I would say to boys and girls, you have functions fitted to certain uses; hence they are for those uses; to make other use of them is wrong. Both self-abuse and sexual connection (save between husbands and wives) come thus to be abnormal things.

I know not whether, in this way, we can really meet the danger connected with adolescence which I started out to consider. Things are complicated in this world, and when we find one sound and wholesome method of procedure, it does not follow that it will always have the result desired. Wise education is something that requires infinite tact and the co-operation of a great many factors. And yet I believe what I have suggested is one true and normal line of action, and if we follow it, we may at least help in meeting our difficulty. If we are full of reverence ourselves before the great facts and laws of life, we can hardly fail to communicate something of it to our children. And reverence is the deep central need of life; the feeling that we have something else to do in life than to follow our temporary caprices or pleasures, the sense of a law above them. In childhood and youth is a happy time to sow reverence, but reverence must be based on knowledge. That reverence never dies out, not with the oldest man.

LYING, STEALING AND KLEPTOMANIA IN ADOLESCENCE.

Dr. W. X. SUDDUTH—Embryologists tell us that the child, in its development from the ovum to maturity, passes through all the stages of evolution that the race has experienced in its devolopment from monad to man. If this be true, and my own observations confirm the statement, then in the life of the child we may expect to find reproduced the life history of the race, not only as to changes in form, but also as to evolutionary changes in mind and morals as well.

While the intra-uterine life of the child represents the vegetative stage in the development of the race, its birth ushers in the animal stage of existence, which extends to the period of moral awakening into the fully developed soul. The age at which children attain moral responsibility varies greatly in different individuals, peoples and countries. Some never attain it, others only in an imperfect degree, while in others it seems to be innate. Much depends upon prenatal influences and early environment.

While it is true that conscience is inherited and may be denominated the moral instinct, yet it is such an intangible quantity that it is very hard to define. The conscience of the present age may not be the conscience of a previous age or civilization. Conscience in one country differs very greatly from the same moral instinct in another country and clime. At best it is a very flexible article, and is largely the product of environment and education, and yet even the cannibal has a code of ethics which to violate he considers immoral, and in savagery there are also degrees of moral responsibility.

Admitting, for the sake of argument, that most children in our day and generation are born into the world with some degree of conscience which may lie dormant until called above the threshold of consciousnesss by life's experience, we must still admit that the child, in the first few years of its life, even in the most refined and enlightened environment, only too plainly demonstrates its uncivilized and animal nature. It has to be taught inhibition of bodily function through repeated and often painful experiences, and the most frequently used word in the vocabulary of the nurse or mother is "don't," "don't," "don't do what your animal nature tells you to do." And thus, through more or less constant repression, the child is brought under the restraint of civilization, and becomes an orderly citizen. If his animal nature rebels and he absolutely refuses to become civilized, he is classed as irresponsible or incorrigible and is sent to the asylum for the feeble-minded or to the reform school. The nursery and the schoolroom, however, are the first institutions into which the young savage is introduced, and, excepting the curtailment of physical liberty, the discipline is often as strict as it is in state institutions.

Admitting the truth of the premise that the child is born into the world in a state of savagery, nude, not only as to person but as to morals, and that introduction into civilized society is a process of education which covers a longer or shorter course of instruction, and that the final accomplishment largely depends upon the ability and skill of its instructors to meet the varying individual idiosyncrasies of its animal nature, we are prepared to take up the breaches of ethics under discussion in this paper, viz., "lying" and "stealing." Before, however, we proceed to treat of their manifestation in the child, let us briefly consider the question as related to its more or less remote savage progenitors, and see whether we can not find in the past history of the race some excuse or partial palliation for the much-to-be-deplored traits of character found in some children.

In primeval times, and in the wilds of Africa today, savage man knows no law but that of "self-preservation" and "the survival of the fittest." Even in the lower forms of life these laws are universally operative at the present time, and deception by mimicry and subterfuge is the most effective means of defense of the weak against the strong. Even the bird will feign to be wounded, and utter the most painful notes, to distract the attention of the enemy from her young, and draw it to herself, if haply she may preserve their lives. "Playing 'possum" is not confined to the opossum alone, but is a common trait in all forms of life, and is considered justifiable and ethical when found in nature. But when the human weakling, placed by no volition of his own in so-called civilized conditions, resorts to subterfuge and deception, adding verbal deception to that practiced by the lower forms of life, he is called dishonest or a plain liar. Again, when a hungry animal, man included, in a state of nature takes food where he finds it, even if it be from his neighbor's garnered store, he is simply following out the God-given instinct of self-preservation. It may have to pay the penalty of its depredations with its life, but even taking of life, in a state of nature, is not considered immoral; it is only the practical application of another of God's laws, viz., the survival of the fittest. But when a hungry child or man, following this same law, is detected in taking food from his neighbor's store, the act is called stealing, and if the quantity taken is sufficient, he is adjudged a criminal and sentenced by the law to imprisonment in jail or reformatory.

Laws are but the expressed mandate of the strong against the natural tendencies of the weak, in following out their God-given instincts; or, in other words, they are rules made by the most powerful element of society; for power at the present time is measured by property interest; hence our stringent laws against depredation on property even when done in pursuance of nature's law of self-preservation.

The term "stealing" is applied to the taking of property by the poor and needy, either for the alleviation of their immediate wants, or to satisfy a desire for gain, in imitation of their more fortunately situated neighbor, who, when making depredations upon the goods and chattels of his fellow man, is spoken of as a "speculator" or a "dealer" on the board of trade; or if he "lifts" goods from the counter of the tradesman or the dinner pail of his fellow, goods for which he has no immediate use, such act is designated by the more euphonious term of kleptomania.

Aside from its purely biological aspect, however, this question is one of deep sociological import. Let us first consider the question of lying: Generally considered, lying is "a criminal falsehood," an intentional violation of truth, or an intentional misstatement of facts. Now, facts have as many aspects as there are individual observers of them. It is impossible to know anything *per se* in and of itself. It is only by comparisons more or less abrupt that we can know anything. We could never know cold, except we had felt its opposite, heat. We could never know light except we had been in darkness. We could never know pleasure except we had experienced pain. We could never appreciate truth except we had met falsehood. And so we might go on throughout the whole category of facts in nature. To speak the truth about any experience or fact in nature, requires an intellectual grasp of the subject in its entirety, and the mental capacity to draw logical deductions therefrom. Human nature is essentially original, and is instinctively antagonistic to rule. The personal equation is the greatest question that the student has to face in the study

of man. Individuality, which means originality, and imitation, or, as Sids puts it, suggestibility, are the opposite poles of human nature. While, however, man is an imitative animal, and therefore to a great extent a creature of environment, yet, by reason of his innate originality, he constantly works variations into his experiences or his facts which give them the flavor of untruthfulness. This is evidenced in every phase of human experience, even the simplest, in which there is no advantage to be gained by misrepresentation. This is well illustrated in the game of "gossip," for instance. Any number of people may participate in this form of mental diversion. The leader makes a statement to his immediate neighbor, who repeats it to the person next to him, who in turn passes it on to the next one, and so on until it is retold to the original speaker. By this time it is generally so modified and varied by the personality of those taking part as to convey a widely different meaning from the words first spoken.

Then, again, man is an imaginative animal, and his constant tendency is to clothe his images, which are subjective creations or experiences, with objective garments through verbal relation or expression. If these tales do not happen to tally with our experience, we say, "Ah, he is building air-castles, or he is lying," when in fact we often are the ones at fault and the day-dreamer is the prophet of the future. The ideal is the real, and the vain, impractical ideas of the dreamer of today often become the verities of the future. But, you say, you are evading the real point at issue, lying is intentional misrepresentation. Admitting that this is true, it is still absolutely necessary to consider the question in all its bearings, so that we may have an intellectual comprehension of the motive that actuates the individual, in order to determine whether he is guilty of an immoral act, or simply has exerted a too free play of the imaginative faculty. Imagination is a subjective gift, and is normal in childhood, poets, musicians and inventors. It is only abnormal when it invades the domain of the objective and begins to jeopardize the interests of property. The child in the nursery clothes its paper dolls with important personalities, and prattles away by the hour regarding the wonderful experiences and doings of the Mesdames Vanderbilt, Astor and Gould of their mimic world; and yet we encourage it up to the point where the little darling invades the outer world with its poetry, when it becomes immoral and reprehensible. And yet the child is only living out its true subjective nature.

A case in point came to my notice not long since. A precocious boy of five was intrusted for a brief time each day with the care of some cattle. On horseback he herded the drove on the prairies while the regular herder went to his dinner. He was admonished to be very careful not to let any stray away. It was an easy job, and having little to do he often drew on his imagination for entertainment. "What," he said to himself, "if some *big* men on fast horses should come and drive off some of the cattle under my charge," and in imagination he would follow them and demand the return of the stolen animals. From day to day these thoughts were his greatest delight. He dreamed and dreamed on these exciting experiences, until they seemed to be almost realities to him, and only required the right setting to make them real indeed. The time came thus: One night when the cattle were counted into the pound, one was missing. Willie was questioned and he recited with appropriate embellishment, the story of his day-dreams as to how *two great big men*, one on a black horse with flowing mane and tail, and the other on a white horse, oh, such a beauty! had come and driven off a *big red* steer. The more he was questioned the more tenaciously he clung to his story, adding points at each repetition until it became a veritable nursery tale, as such it proved to be, for on a recount in the morning the tally was found to be correct, a mistake having been made in counting the night before. Did the child lie? Who can answer! He may have been afraid of punishment for neglect of duty, and sought to shield himself by throwing the blame on the *two big* men who, he asserted, came and forcibly took away the supposed lost animal, and against whom he could not reasonably have been expected to contend. It may have been egotism, pure and simple, that craved the notoriety of the hour in being the center of interest. It may have been an hereditary tendency, directly inherited, to deceive. Who can tell! Who dare assume the responsibility to judge the child's mind and ascribe the motive that determines the condition!

Painters, poets and writers of fairy and other similar stories draw on their imaginations for their productions, and we grant them full need of praise. None think them immoral until they claim reality for their dreams. If, in following out the God-given instinct of self-preservation, or through lack of intellectual or moral perception, the claim of reality is made with the idea of personal advantage in the struggle for existence, then the conditions immediately change, the motives are impugned and the culprits condemned as born falsifiers. When the weak following the purely natural instinct of self-preservation, resort to these methods, which are the only weapons they have against the strong, they are adjudged enemies of society and punished as criminals, or if it can be shown that they are not mentally responsible they are sent to asylums. The question, therefore, resolves itself down to this, that lying, stealing and kleptomania from a biologic standpoint, are the outcroppings of purely natural instincts, commendable in a pure state of nature, but greatly to be deplored in our present state of civilization.

If my premise is correct it seems to me that the rationale of treatment does not lie in harsh, unsympathetic measures of condemnation, in which the motives of the individual are impugned, but in a careful system of education looking toward the moral, intellectual and physical upbuilding of a child. The first step in this direction lies in a careful medical examination in order to ascertain whether there are any physical conditions existing that would place the child in the defective class. Defective sight or hearing has often caused an otherwise tractable, obedient child to become insubordinate and fall behind his fellows, he suffering the while mentally and physically because of his unrecognized deficiencies. Other physical defects have been known to produce similar results.

The second step in the successful handling of such cases is a sympathetic understanding of man's place in nature.

The third step involves a systematic exposition of the general principles of ethics, based upon biologic facts, in language so simple as to be readily grasped by the undeveloped mind of the child. It is surprising how freely the youthful mind will absorb even the most profound principles of ethics when logically and simply presented. In this system of education the child should be permitted, so far as possible, to be its own judge as to the degree of normal progress attained. Whenever it is practicable courts of justice should be established, officered by the children themselves, to which should be referred all the cases of infraction of the laws of ethics that occur within its jurisdiction.

Prof. COLIN A. SCOTT discussed the subject of

SCHOOL FATIGUE IN ADOLESCENCE.

He said fatigue was really the negative side of all work, of all effort. There was nothing accomplished anywhere by any sort of organization which did not leave behind it some trait or a small degree of fatigue. Reference was made to the recent work done in the experimental laboratories of psychology along this line and to what are known as "fatigue curves." He thought there were undoubtedly some individuals who had practically a chronic condition of fatigue, and it might be congenital in such cases. In doing the same kind of mental work one individual manifested fatigue much sooner than the other, due in part perhaps to weaker groups of brain cells, and hence a greater susceptibility to fatigue. One of the significant features of adolescence was the principles of generalization, and these were largely connected with sex. He could not wholly agree with Mr. Salter's method of dealing with children and telling them the plain facts about the sexes at an early age. He thought that sex would not be satisfactory unless clothed with a certain amount of mysticism, a sort of something which it was impossible to entirely penetrate.

Chicago Medical Society.

Regular meeting, held April 6, 1898.

The President, Dr. F. HENROTIN, in the Chair.

Dr. CHRISTIAN FENGER read a paper entitled

WHY I HAVE ABANDONED THE USE OF THE MURPHY BUTTON AND OTHER SIMILAR MECHANICAL APPLIANCES IN INTESTINAL OPERATIONS.

He had abandoned Senn's plates, partly because their application was complicated and required about the same time as suturing, and partly because he saw them cause gangrene, and cases were reported in point. He did not consider it necessary to include in the discussion the experience of other surgeons, as this could be gathered from the literature and was well considered and ably discussed by Jacobson. He considered his own experience ample to decide conclusively the principle involved, and he believed, furthermore, that this was a matter that could not be decided by statistics alone. It was immaterial how many cases were successful and how many were failures for a decision as to the fate of the Murphy button and other mechanical contrivances. Dr. Fenger then reported cases in detail in which the Murphy button was unsatisfactory. He drew the following conclusions: 1. Any mechanical contrivance based upon the occurrence of sloughing and gangrene is objectionable as it is beyond our power so to constrict the

gangrene that it will not overstep the limits of safety. 2. Any mechanical appliance that is non absorbable is objectionable because it may be retained indefinitely in the gastro intestinal tract, and may therefore be the cause of disturbances, and because it may be dangerous or impossible to remove the foreign body. 3. Mechanical appliances, whether absorbable or non-absorbable, may cause fatal gangrene without limitation. The Murphy button I consider the most effective, the most dangerous, and I might say, the most brutal of them all in this respect. 4. I looked toward mechanical appliances with great hope for their usefulness, but after a fair trial for years I am gradually and reluctantly forced to give them up. 5. The surgeon who does intestinal surgery must learn to suture, to use the needle; first, on the lower animals until he becomes proficient. 6. I fully agree with Halsted when he says: "I believe that the license to practice general surgery should be withheld from those who have not practiced on animals the operations for circular suture of the intestine and intestinal anastomosis." If a surgeon has not acquired the skill of using the needle, he has no right to attempt this kind of work; he should leave it to his more experienced colleagues until he has acquired the necessary dexterity. 8. If an operation on the intestinal tract has already lasted so long that the final step of suturing would take so much time that the patient might be in danger of collapse from prolonged operation, then the operation may in many cases be more safely stopped temporarily and finished at a later time. 9. If we search for means to avoid the use of mechanical appliances, then means will be provided. The question of the valuable time saved by the use of the Murphy button and other devices has been overestimated. Take, for example, operations on the stomach. Haberkants, who has collected statistics of all operations on the stomach up to 1895, makes the following statement: "The mortality of operations on the stomach depends not so much on the age of the patient as on the nature and extent of the local disease. The duration of the operation has no influence upon the mortality as judged from eighty-nine total resections and sixty-six gastro-enterostomies. 10. Halsted witnessed an intestinal operation including circular suture. The operation required five hours for its performance, but was successful. This conforms to the opinion I have obtained from my own experience, that the element of time in operations is not of so great importance as one would generally be led to believe.

Regular meeting, held April 13, 1898.

First Vice-President, Dr. ARTHUR D. BEVAN, in the Chair.

Dr. ALEXANDER H. FERGUSON presented a patient upon whom he had operated, removing the inferior dental nerve through the mouth, for the relief of facial neuralgia. He expressed the belief that this operation could be done very easily and the graver operation of the removal of the Gasserian ganglion obviated in many cases. An operation upon the inferior dental nerve, if the neuralgia has commenced in that branch first, and it usually does, should be done and the nerve extirpated, and this could be accomplished through the mouth without scarring the face. Failing in this, the surgeon would have just cause for removing the Gasserian ganglion.

The second case he exhibited was also a patient upon whom he had operated a short time ago for tic douloureux, but in this case he removed the Gasserian ganglion.

A third case exhibited was one in which he did an intravertebral neurotomy of the posterior roots of the brachial plexus for neuralgia.

Dr. FERGUSON next presented a specimen of gall bladder and bile ducts; showing acute phlegmonous cholecystitis and gangrene of gall-bladder, with perforation, causing abscess, peritonitis and death. No operation; postmortem made, and 776 gallstones found.

Under the name of acute progressive empyema of the gall-bladder Courvoisier in 1890 found only seven cases in literature. A few instances have been recorded since then. He had two reasons for presenting this specimen: 1. The rarity with which this affection occurs. This was the first case he had seen after an experience of fifty-six operative cases of cholelithiasis. 2. Early operation in gallstone cases and during the attack of biliary colic. At a recent meeting of the Society it was urged that an operation should not be performed during the attacks of colic, and in refutation of this teaching he showed the specimen and reported the following case:

Mr. J. W. S., age 59 years, merchant, of Syracuse, Ind.; on the 3d inst. was seized with biliary colic, and called Dr. B. F. Hay to relieve him. His pulse and temperature were normal; the pain was intense, only relieved by frequent hypodermic doses of morphin and local applications of hot moisture. A tender swelling, dull on percussion, was felt under the right costal arch. The liver dulness was enlarged and the organ tender. He was not constipated. By the third day the paroxysms subsided, the tumor and tenderness remaining, as well as a dull, constant aching sensation. On the evening of the third day the smouldering pain became infuriated to intense seizures of suffering, causing him to complain even when profoundly narcotized with morphin and the abdomen covered with hot stupes. Slight tympany; a rise of temperature to 102 degrees F.; an increased pulse-rate of 110 to 120 per minute, and slight jaundice ensuing, impressed Dr. Hay with the grave condition of his patient, and called Dr. E. E. Ash of Goshen, to attend with him. The aggravated signs and symptoms tenaciously persisting, Dr. W. K. Mitchell of Ligonier was summoned in consultation. All were agreed as to the diagnosis of gallstones complicated with pending peritonitis, which proved to be only too true, and advised an operation. That surgical interference was not carried out in a comparatively early step of the disease, which would have been most likely successful, was not the fault of these gentlemen. Every easy movement, every fall of temperature, and every expression of the patient, of feeling better, raised the family hopes that an operation might be averted. On the sixth and seventh days the tympanites increased and extended over the tumor and lower border of the liver, the pulse and temperature remaining about the same (pulse 110 to 120, temperature 102.5 degrees). He was summoned on the seventh day, and on arriving found that he had died about half an hour previously. Dr. Mitchell, who closely watched the case the last twenty-four hours, kept an accurate record of the pulse, respiration, temperature, condition of the skin, pupils, stools, urine, medicine given, etc. During this time seventy-eight observations were recorded. The pulse ranged from 116 to 136; respiration 28 to 52; temperature 100 to 105.2 degrees F. The temperature was at its lowest degree an hour before death, and the highest ten hours previously, at which latter time, however, the pulse was only 120 and respiration 32. The pupils were constantly dilated, the skin moist except at midnight, when it became dry for a couple of hours, and then the temperature rose to its maximum. His urine passed involuntarily, and he was unconscious nearly all the time, only speaking distinctly once, eighteen hours before death.

Previous history.—With the exception of occasional slight and insignificant colicky pains in his stomach during the last two years, lasting but a few minutes, and never calling in a physician, he has enjoyed the best of health. Family history negative.

Postmortem.—The findings in the abdominal cavity were as follows: A full length median incision allowed coils of distended bowel, normal in color, to protrude; upon passing the hand adhesions were felt in the right lumbo hypochondriac region, but nowhere else. A transverse cut through the right abdominal wall to the lumbar region fully exposed the pathologic condition. The right and upper border of the omentum was red, swollen, covered with thick lymph, overlapping the colon and gall-bladder, and adherent by delicate adhesions to these structures and to the parietal peritoneum and liver. An abscess was situated in the right lumbar region a little below the end of the twelfth rib, which contained about an ounce of pus. A suppurating tract led from it to a perforation in the gall-bladder on its anterior surface near the end. The edges of the perforation in the gall bladder were black and gangrenous looking. The gall-bladder was about twice the normal size, tense and edematous to the touch, livid in appearance with black spots, showing through in many places. It had the manifestations of an advanced stage of acute phlegmonous inflammation. It was sausage shaped and extended along the under surface of the liver beneath the costal arch. The adhesions surrounding it were very friable, and these being broken down, dark colored fluid oozed from the surrounding tissues. The gall-bladder was now opened. It was filled with dark colored bile and 776 stones, varying from the size of half a grain of wheat to a large bean. The mucous wall of the gall bladder was gangrenous in many places, which here and there showed through all the coats of the viscus. The ducts were laid open and found normal. All the other organs in the abdominal cavity appeared normal, even the vermiform appendix.

Bacteriologic examination.—In Professor Klebs' laboratory at the Post-Graduate, the contents of the abscess and the fluid contents of the gall-bladder were subjected to a bacteriologic examination.

Remarks.—Cholecystotomy performed early would most likely have saved his life. Waiting for the attack to pass off proved fatal, and this was his first pronounced attack. If infection is present, the sooner it is uncompromisingly attacked surgically and drained the better. In a well-marked case of biliary colic, let it be even the first attack, the gall-bladder

enlarged, tender, etc., he could see no scientific or reasonable objection to the removal of the gallstones there and then during the attack. Early operation shortens suffering, prevents complications, and in most cases obstruction of the ducts. No case should, in his opinion, be allowed to become chronic, early gall-bladder surgery is safe and easy, while late operations are dangerous and difficult. The physician has no assurance from clinical experience or pathologic findings that in a given case the attack of suffering will subside without causing: *a*, jaundice by obstruction of the common duct which may remain until relieved by a serious operation; *b*, rupture of the gall-bladder; *c*, ulceration and perforation by pressure of the stones; *d*, death by the severity of the colic; *e*, empyema, and *f*, acute phlegmonous inflammation and gangrene.

From clinical experience we know that it is utterly impossible to tell the sufferer the number and size of the stone or stones within his gall-bladder, or what the outcome of his case may be. To advise a fellow-being suffering these torments to delay operation until the attack is over, in a clear case of cholelithiasis, is cruel and blind advice.

Dr. E. W. Andrews presented three cases of circular enterorrhaphy which he had performed by different methods. In one case he used Frank's coupler with a satisfactory result. The patient was 25 years of age, and had been in perfect health with the exception of an inguinal hernia. He was called to see the patient to relieve the strangulation. An operation was done and the intestine not only found to be gangrenous, but surrounded in the hernial sac by a quantity of pus. It became necessary to resect a section of the bowel, to resort to end to end anastomosis, and in this case he used the Frank coupler. Operation was done on Wednesday, and the coupler passed per rectum on the following Monday.

The second case was one in which he performed a circular enterorrhaphy by Monsell's method.

The third case was one of complete occlusion of the small intestine occurring in a man advanced in years, and brought to him *in extremis*, having a pulse of 140 or more, and vomited everything. An enterorrhaphy was made by the method of Monsell, followed by recovery. Microscopic examination showed adenosarcoma of the small intestine. The three cases recovered.

Dr. Edward H. Lee showed a patient upon whom he had operated for renal calculus. He passed around a skiagraph showing a shadow corresponding not only with the location of the stone but with its size and form.

A second case exhibited by him was one of exophthalmic goiter. The enlarged glands were removed. He said authors differed greatly as regards operative interference in these cases. He agrees with Mikulicz that surgical interference should be limited to suitable cases. Stenosis in this case was so marked as to justify surgical interference. Extirpation should be done where possible on account of being easier than excision. He used the Kocher incision above clavicle, believing that it gives the best cosmetic result. He also reported a case of extra uterine pregnancy in which he had operated, and showed the specimen.

Dr. William A. Mann exhibited a patient with tuberculosis of the eyelid. Sixty-two cases of this affection had been reported, and he presented the case on account of its rarity.

Dr. David Lieberthal exhibited an interesting case of scleroderma.

Western Ophthalmological, Otological, Laryngological and Rhinological Association.

Abstract of the Proceedings of the Third Annual Meeting held in Chicago, April 7 and 8, 1898.

(*Concluded from page 986.*)

Dr. W. H. Baker of Lynchburg, Va., contributed a paper entitled

THE POLITZER AIR BAG,

in which he deprecated the universal, and too common, use of that instrument when the simpler and safer method of Valsalva could be employed with equal success, and much less danger to the integrity of the ear and its structure. The dangers to the integrity of the ear, when the method of Politzer is employed, are rupture of the tympanum, injury to the ossicles, labyrinthine hemorrhage, etc. He claims that there is no middle ground between the method of Valsalva and cauterization for the air-bag of Politzer to stand upon, and that what can not be accomplished with much more readiness and safety to the patient by the method of Valsalva, in the way of inflating, can only be accomplished by the aural catheter.

Children can easily be taught to inflate their own ears, thereby avoiding the fright and disgust caused by the sudden, sharp blast produced by the air-bag, which is about as apt to force air into the stomach as into the middle ear, unless the child has been taught to pronounce the proper letter at the proper time, or swallow the water when told, which is as tedious a process, if not more so, as teaching the method of Valsalva.

The paper is a plea against the indiscriminate use of the Politzer air-bag.

Dr. W. Scheppegrell of New Orleans, read a paper on

THE NON-OPERATIVE TREATMENT OF DISEASES OF THE UPPER RESPIRATORY PASSAGES.

The object of the communication is not to disparage the effects of surgical methods, but to emphasize the importance of non-operative measures and their usefulness in a lage majority of cases. So many articles have been published on the surgical methods of treating diseases of the nose and throat, and in comparison so few on non-operative methods, that the former has assumed an undeserved prominence, so that many patients and even physicians believe that every pathologic condition must be remedied by surgical interference. The "six weeks' specialist" is especially dangerous in this connection; he has witnessed a large number of operations in the polyclinic, many of these cases having been especially reserved for these lectures, and he associates every case which he meets with surgical methods. He purchases the necessary instruments, and, on his return home, every patient is viewed with the possibility of utilizing this investment.

The limits of this paper permitted only of illustrating the principles of non-operative methods without going into details. The nasal septum does not require surgical treatment simply because it is slightly deformed; an operation is required only when it impinges into the opposite tissues, offers marked obstruction, or gives rise to reflex disturbances.

In the treatment of acute coryza, the author has had the best results from a spray of a 2 per cent. guaiacol solution, and the internal administration of quinin. The prescribing of cocain preparations in these cases is dangerous. There is no justification for placing this alkaloid in the hands of the patient, thus favoring the formation of the cocain habit.

The greatest surgical abuses in rhinologic practice have been in hypertrophic rhinitis and in the so called intumescent rhinitis. Congestion of the nose may be a sign of a disturbed condition of many other parts of the body, and these should be carefully eliminated before surgical methods are applied. The cases in which they are demanded will be found comparatively few.

In atrophic rhinitis, cleanliness is a most important factor in the treatment, and this may be best obtained by means of copious irrigation with non irritating solutions. The methods that have been recommended are the various topical applications, sprays, massage, electrolysis and serum therapy. The location of the accessory sinuses makes the treatment almost necessarily surgical. It should not be forgotten that acute sinusitis naturally tends to cure. Exploratory punctures of the antrum are not without danger and may develop a purulent condition in healthy antra.

In naso pharyngeal catarrh, surgical methods are usually referred to the nasal chambers. It should be remembered, however, that certain constitutional conditions, such as lithemia, scrofulosis, etc., may here exhibit a local expression of a general dyscrasia. An important part of the treatment is to prevent the patient from irritating the pharynx by means of the *nasal secreta*, by means of which the secretion is drawn into the mouth and expectorated. A non-irritating solution should be given the patient as a means of freeing the nasopharynx, and all violent efforts on his part to clear the throat should be avoided. It should be explained to him that the sensation of the secretion in the throat may be due not only to its actual existence, but also to the increased sensitiveness of the throat, which would cause even the normal secretion to feel as a foreign body.

Hypertrophy of the faucial and lingual tonsils may exist to a considerable extent without giving rise to inconvenience, and as the tendency in these cases is to diminish with advancing age, the *laisser faire* plan is a good one, unless indications positively point to surgical interference. Operations on the tonsils are not entirely without danger, and the argument that the tonsils are of no service, and that their extirpation can cause no harm is one that we have no right to assume.

In regard to the larynx, while admitting the importance of the respiratory function of the nose in this respect, we should not at once assume that every defect in the throat is due to some obnormality of the nostrils, and still less that the condition must necessarily be improved by operative measures in the nasal chambers. Cases have been seen by the writer in which

the cautery has been applied so extensively that but little of the normal mucous membrane could be seen, thus destroying the glandular elements and inhibiting its capacity for supplying moisture for the inspired air. How the operator expects to benefit the larynx by these heroic methods, it is difficult to understand. The larynx may be affected by various conditions of other parts of the body, even the most remote, and the cause of irritants of all kinds should be removed. In a recent case the discontinuance of the habit of smoking twenty cigarettes per day cured a spasmodic laryngeal cough of long standing.

The nose and throat specialist should avoid the tendency of becoming narrow in his views and of seeing the patient only through the laryngoscopic mirror and nasal speculum. He should be as familiar with matters of general medicine as the general practitioner, and should make it his motto not to know less of general medicine, but more of rhino-laryngology.

BILATERAL ABDUCENS PARALYSIS.

Dr. WM. A. FISHER of Chicago—I present this case of bilateral paralysis, not as a common one, but as one of the most infrequent occurrence. Here we have not only paralysis of both abducens, but as much contraction as is possible, not only of the muscles that turn the eye inward, but of all the ocular tissues toward the nasal side. I would hesitate to present to this Society an ordinary case of unilateral abducens paralysis, for you all know how frequently they occur. In fact, I am rarely without such a case. At the present time I have three cases in my clinics all giving a specific history. This case shows what a great deformity can follow a paralysis of this kind.

The history of this case is as follows: Mrs. B., aged 50 years, married thirty years, has five children, three living and in good health; one died of measles and one of croup; father died at the age of 70 years, mother died at the age of 75. She has had three brothers, one died in the army in India; has not heard from other two for ten years, when they were in good health; six sisters, two died in infancy, others in perfect health. Thirty-seven years ago, or when she was thirteen, her left eye began to turn in. Previous to that time she was not aware of having any eye trouble. She consulted a physician in Ireland and was told her eye could be straightened by an operation. About twenty years ago, or seventeen years after the left eye turned in, her right began to turn. Six years ago she had la grippe, and since that time her eyes have grown rapidly worse. The last two years they have been about as we now find them. The patient has been a hard-working woman all her life, doing washing and carying heavy baskets of clothes on her head. She is now in, and has always enjoyed good health. Vision is sufficient to enable her to get around where she is well acquainted; tension normal. The eyes were rotated so far inward that both pupils were hidden in the inner canthi. It was impossible to rotate either eye out under cocain anesthesia. Not being able to get an ophthalmoscopic view, and knowing there could be no harm in an attempt toward straightening, and possibly some good result, the patient was anesthetized with chloroform and an effort made to rotate the right eye out and sever the offending tissues. It was impossible to rotate the eye outward to any extent, but an attempt was made to sever the internal rectus. Not only was it necessary to sever the muscles that rotate the eye inward, but it amounted to a dissection of all the ocular tissues toward the nasal side. The eye was fixed as firmly as in a case of panophthalmitis, and adhesions everywhere. A slight improvement was produced which lasted a few days; the pupil was free from the inner canthus, but no improvement in vision. Contraction has taken place and the eye is in about the same condition as I found it. The patient has never complained of pain in the eyes and gives no history of an inflammatory condition, but we have adhesions that could not have been produced by inflammation and the patient remained unconscious of it.

Hutchinson reports seventeen very interesting cases of ophthalmoplegia externa (Royal Medical and Chirurgical Society of London, 1879). In summing up his report it seemed certain that syphilis was the cause in ten of the seventeen; that in the remaining seven a reasonable suspicion of syphilis might be entertained in several. He further says, with such a fact in mind one feels that it is almost impossible to make the negative even fairly possible. The evidence which connects this affection with syphilis is exceedingly strong, and that which favors the belief that it can occur independently of it must be held to be open to some doubt. The cause of paralysis in this case is obscure. We can exclude some of the common causes, but syphilis should not be excluded, even if we have, as we do in this case, a negative history. As syphilis is given as the cause of nearly all these paralyses, I have given her increasing doses of potassium iodid, and will continue for a reasonable time. It would be no more than fair to suppose the lesion in this case was caused by la grippe.

The following officers were elected for the ensuing year: President, J. E. Colburn of Chicago; first vice-president, Wm. W. Scheppegrell of New Orleans; second vice-president, Casey A. Wood of Chicago; third vice-president, H. Gifford of Omaha, Neb.; secretary, Frank M. Rumbold of St. Louis; treasurer, W. L. Dayton of Lincoln, Neb. Place of meeting, New Orleans, La.

SELECTIONS.

Immediate Laparotomy in Wounds of the Abdomen.—A paper on this subject by Surgeon Caillet of the French Army was read by M. Chauvel at a recent meeting of the Académie de Médecine, the author having based his remarks mainly on two cases that were related in detail. In the first a non-commissioned officer received a revolver shot point blank in the lower part of his abdomen, and an hour later was taken to the hospital. The officer on duty dressed the wound with iodoform and applied a bladder containing ice. The following morning when Dr. Caillet saw the patient, six hours after the injury was inflicted, he was in a good condition, the temperature was 96.8 degrees F. and the pulse 80; there was no vomiting, hiccough or dyspnea. By 4 o'clock in the afternoon, however, unfavorable symptoms had set in and at 7:30 operative interference was decided on. Median laparotomy disclosed four perforations of the small intestines and the cavity of the peritoneum contained some doubtful looking fluid, with particles of food and false membrane. Recovery, which was delayed by an attack of pneumonia, took place in about six weeks, the missile coming away in a stool on the ninth day. In the second case a dragoon was stabbed in the left iliac region and immediately vomited some coffee he had just taken. Four hours later he was admitted to the Vincennes Hospital, his general condition being then satisfactory. There was no nausea and his pulse beat firmly as 70. An attempt was made to probe the wound, but the stylet could not be introduced. A perforation seemed uncertain; an expectant treatment was adopted and the next morning the patient was so well that he was allowed several spoonfuls of milk. A few hours after this a complete change took place and urgent signs of generalized peritonitis showed themselves. Median laparotomy was at once performed, but the patient was so weak that only the small intestine could be examined, the result being negative. The abdomen was then closed, after the cavity had been washed out with warm artificial serum. Shortly afterward the man died and at the post-mortem examination it was found that the large intestine had been pierced. The author believes that if preventive laparotomy had been adopted the patient would have been saved. There is no intrinsic danger in laparotomy nowadays, he says. Then why delay it even in the most doubtful cases? In the instances cited the impossibility of sounding the wounds contributed largely to the postponement of the operation; but considering the small-sized projectiles now in vogue this method of establishing a diagnosis should not be accorded too much weight, especially when anesthesia has not been employed. Exploration is, no doubt, of great value where practicable, but inability to effect it is no proof of the absence of perforation. Statistics may be unfavorable to immediate laparotomy in penetrating wounds of the abdomen, but the author, nevertheless, maintains that it is generally indicated, and in this opinion he apparently has the support of M. Chauvel.

Alimentary Glycosuria.—Krehl has studied alimentary glycosuria occurring after beer drinking, and for this purpose he has examined one hundred students. He was able to vary the kind and amount of beer taken, as well as the time of drinking and the diet. The urine of four young brewers, who had drunk large quantities of beer in the fasting state or at breakfast time, was also examined, and in one case sugar was found. The exact composition of the beer, especially in regard to sugar,

was not ascertained. The students examined mostly drank one-half to two liters and a half of beer in the morning. Of fifty seven drinking a lager beer, the sugar reaction was positive in four cases, or 7 per cent. In the case of an export beer, five out of fourteen, or 36 per cent., had glycosuria. In twenty-five students drinking one-half to one and a half liters of Rosen beer, no glycosuria was observed. Out of nineteen cases drinking large quantities of an Ehringsdorf beer in the evening, one, or 5 per cent., had glycosuria. Of eleven other students drinking largely of all sorts of beer, only one had glycosuria. It was often impossible to repeat the examination in these cases. The predisposition of the individual is always important in these cases, for those who drink the most are not always those who have the glycosuria. The more marked presence of the glycosuria in the morning was due to the more rapid absorption. Both Strümpell and Strauss showed that alcohol favored the appearance of an alimentary glycosuria. Perhaps the sugar in the urine in these cases was due to the action of the alcohol, but other substances in the beer may be responsible. The author thinks that at the present moment there is no satisfactory explanation of the alimentary glycosuria following upon beer drinking.—*British Medical Journal.*

Vaccination has Suffered more from Negligence than from Fanaticism.—The blessing which vaccination has conferred upon mankind will never be appreciated, certainly never heartily received, till smallpox shall have had an opportunity to demonstrate its unspeakable loathsomeness and death-dealing power in full epidemic swing and form. Antivaccination societies still exist in Europe and America, but the bait in converts which the fanatical fools who belong to these orders offer the Gorgon of smallpox is a bagatelle compared with the multitudes who are suffered carelessly to go unvaccinated, through loose sanitary regulations, or who are resting in fancied security given by imperfect vaccinations, or primarily perfect vaccinations whose protective power has been canceled by time. Vaccination even by the profession is often carelessly administered, while the laity presume to vaccinate without professional advice, and even give judgment upon the genuineness of the vaccine scar with the confidence of experts. Vaccination should never be done by inexpert hands. The source of the virus should be unquestionable, and the result should be carefully noted in every case. Nobody but an expert can pronounce upon the genuineness of the vesicle (any kind of sore or inflammatory lesion must not be allowed to pass for a vaccination), and revaccination should be insisted upon in every case after the lapse of five years from the time of the last successful vaccination. If vaccination and revaccination were made compulsory by legal enactment, and the above rules were carefully followed, smallpox would be stamped off the face of the earth in a decade. As it is, the disease lies in wait till the careless or unsuspecting victims become sufficiently numerous, and then begins the march of death.—*American Practitioner.*

Pure Diphtheria.—Dr. Barbier has communicated to one of the Parisian medical societies the results of an elaborate study of unmodified diphtheria. He thinks that he has demonstrated that cases of pure diphtheria, due to infection with the diphtherial bacillus only, were clearly distinguishable from cases of modified diphtheria in which the additional infection of other microbes, streptococci, staphylococci, etc., played a part. As a result he presented a clinical description of diphtheria much simpler and more definite than the existing one, which embraces all forms. This pure diphtheria may be observed experimentally in animals in which the bacillus causes simple vaso-constriction and necrosis but never inflammation. But when diphtheria occurs in man it is usually in the modified form, for being but feebly contagious a pre-existing morbid condition of the affected surfaces is generally necessary to enable the disease to install itself. The diphtherias secondary to scarlet fever and measles are examples of this. In only fifty-four out of 221 cases examined bacteriologically was the diphtheria pure. Pure diphtheria is to be recognized clinically not by the appearance of the membrane but by the state of the throat especially; the mucous membrane is not inflamed, but on the contrary; rather pale mucous or purulent secretion is absent, and adenopathy is absent or trifling. The temperature is but little elevated; it is at most a little over 100 degrees or 101 degrees F., and this only temporarily. The pulse is always small and rapid. There is little or no albuminuria. However benign may be the appearance of the throat the patients look ill and have a pale, leaden complexion, because they are under the influence of the diphtheria toxin. No matter what may be the extent of the membranes or the multiplicity of the localities attacked, recovery under the influence of antitoxin manifests itself on the following injection and is completed in two or three days, rarely later. The prognosis is therefore very good. All Dr. Barbier's fifty-four cases, which included thirteen laryngeal cases in which intubation had to be performed recovered. There is only one danger in this form, extension of the disease to bronchi, which may lead to suffocation. Dr. Barbier never observed paralysis in any of his cases, a remarkable fact. In modified diphtheria of the throat the mucous membrane is always red, sometimes it bleeds and the tonsils are always swollen. The inflammation may be limited to the neighborhood of the false membrane, confined to a part of the mucous membrane, for example the uvula, or generalized. In the pharynx is seen mucopurulent matter, secreted there or coming from the nose or larynx. In almost all cases the lymphatic glands are enlarged. Though the appearance of the membranes is not characteristic in most cases, and especially when there is staphylococci infection, they are rather thick and extensive, and often the odor of the breath indicates decomposition which is caused by saprophytes. The nose is almost always attacked, and whether membrane exists or not there is a discharge, serous, purulent, or hemorrhagic, containing numerous septic microbes. The temperature is higher than in the purer form 101.3 to 104 degrees. Complications such as bronchopneumonia, otitis and impetigo frequently occur, and in the worst cases septicemia.—London *Lancet*, February 19.

PRACTICAL NOTES.

The Success of Oxygenated Serum in Cold Abscesses is announced by E. Luton, who recently proclaimed its value also in diffuse psoriasis. He makes injections of a mixture of 75 grams of a 10 per cent. solution of sodium phosphate with 25 grams of oxygenated water at 20 volumes.—*Sem. Méd.*, March 9.

Ichthyol Spray in Acute Catarrhal Laryngitis.—The throat is sprayed with a 2 per cent. aqueous solution of ichthyol which the patient inhales twice a day, not inhaling too profoundly, for fear of producing nausea. The spasmodic cough and hoarseness soon disappear, as was also the case in several cases of false croup.—*Sem. Méd.*, March 19.

Wolkowicz' Method of Operating Muscular Wry-Neck.—The muscle is cut from the front, high up, obliquely downward to the back, and the lateral edge of the upper stump sutured to the medial edge of the lower part, leaving the medial part of the upper and the lateral part of the lower ununited. In this way the muscle can be lengthened as desired.—*Cbl. f. Chir.*, March 12.

Initial Symptoms of Osteomalacia.—The bones become sensitive to pressure, especially the spine in the lumbar region; paralytic troubles in the muscles of the pelvis and thigh; subjective disturbances of an ostalgic or neuritic nature. Fine results have been obtained with 1 to 5 centigrams phosphorus to 100 grams cod-liver oil. One teaspoonful three times a day. —P. Rissmann, *Cbl. f. Chir.*, March 19.

Terralin is the name given to a new salve base which has all the advantages, and more, of the usual salve bases, with none of their disadvantages, we are informed. It is made of a mixture of calcium sulphate, ustum; kaolin; terra silicium; lanolin; glycerin and the antiseptics. In consistency like lanolin, but more plastic, it is readily washed off with pure water, which adapts it for cosmetics, etc., besides its important therapeutic uses.—P. J. Eichhoff, *Deu. Med. Ztg.*, 19.

Ulcer of the Foot, according to Schulte, is not caused by inflammation of the tendons or periosteum as generally accepted, but is due primarily to a fracture of the second, third or fourth metatarsal bones. In fifty-nine cases he has examined, a callus was always distinctly to be felt, and radiographs in many cases confirmed his opinion. Crepitation and abnormal mobility was noted in six cases. His treatment is rest in bed, massage, moist bandages, and later, painting with iodin.—*Cbl. f. Chir.*, March 19.

Keratitis and Conjunctivitis may be treated with massage and a sublimate-cocain salve. Sassaparel has found the following salve, followed by gentle massage through the closed lids, for a minute or two, extremely effective in cases of phlyctenular keratitis, ulcers of the cornea, chronic conjunctivitis and episcleritis; cure in ten days at most: Five per cent. sublimate solution, one drop; cocain hydrochlorate, ten centigrams; vaselin, four grams.—*Sem. Méd.*, March 19.

Connection Between Nasal Affections and Psychiatry.—C. Ziem urges a more active treatment for certain mental disturbances, and traces the connection between them and nasal troubles, especially affections of the accessory cavities, determining disturbances in the circulation of the frontal region of the brain. His communication in the *Monats. f. Ohr. k.*, 1897, 11 and 12, describes his own personal experience with scientific candor and accuracy, and is a convincing plea in favor of the alleged connection.—*Cbl. f. Chir.*, March 12.

Neurasthenic Hunger.—Neurasthenic individuals sometimes experience peculiar attacks resembling fainting spells, with extreme weakness, pallor, vertigo, cold perspiration, weakness and trembling in the knees and a sense of heaviness in the head. T. Benda describes one patient thus affected every afternoon toward night. He noticed that in many persons hunger accompanied the attacks and assuming that they were due to exhaustion from lack of food, combined with autointoxication from food in the intestines which the neurasthenic stomach had hastily passed along in a more or less undigested condition, he found that he could cure them by having the patient eat something, and prevent them altogether by small frequent meals.—*Deu. med. Woch.*, March 31.

Unna Shaves off Soft Chancres after congealing the entire surface with ethyl chlorid, applying the razor flat and slicing off a layer 2.5 to 3 mm. thick, which he states removes all the germs. He then touches the raw surface with the caustic pencil, powders with iodoform and covers with an oxid of zinc dressing, renewed every day or two. If there are several chancres he treats each in the same manner, but takes off a slice 3 to 4 mm. thick in neglected and serpiginous chancres. The rapidity of the cure, often in less than twenty-four hours, the simplicity of the post-operative treatment and the absence of the consecutive scar recommends this method above all others, except when the location of the chancre, at the orifice of the urethra for instance, forbids its application.—*Sem. Méd.* March 23.

Cocain as an Analgesic in Dermatology.—Unna applies it before scarifications, etc., in a powder; cocain hydrochloric, one-half to one gram; magnesium carbonate ten grams. A moist compress is laid outside, for ten minutes, which the patient is instructed to press lightly against the part. If the skin is intact, pure basic cocain must be used instead, or the surface can be painted with the following mixture: Pure cocain, 1 to 2 grams; Hoffmann's solution, 50 grams; collodion, 1 gram. It can also be applied in the following form: Pure cocain, 1 gram; sweet almond oil, 50 grams.—*Sem. Méd*, March 9.

Ichthyol Salve in Measles.—The favorable effects obtained by rubbing the body with ichthyol salve in variola, suggested the same treatment for measles and if it can be applied from the very first, it aborts the infection; neither eruption nor fever appears and the child recovers promptly, if the eruption is already apparent, with hyperthermia and bronchitis; the temperature returns to normal after one or two rubbings, and the patches grow pale and disappear. In four or five days the cure is complete, when a warm bath is given to remove the traces of the salve. He has the salve rubbed in all over the body, morning and night; thirty grams of ichthyol to ninety grams of lard.—A. Strizovere; *Sem. Méd.*, March 10.

Surgical Operations on Hysterics and the Insane.—From a study of 111 cases of ablation of the uterus and adnexa, Angelucci concludes that mental disturbances are not favorably affected by these operations. Only 17 were improved; 25 hysterics were rendered much worse; 44 hysterics became insane; 2 nervous patients, confirmed hysterics, and 23 were not affected either way. He therefore asserts that hysteria is a counter-indication for gynecologic surgical operations, and they should only be attempted when absolutely necessary, and then combined with suggestion, although he concedes that occasions may arise when a simulated laparotomy may be resorted to as a suggestive measure after all other therapeutic means have failed.—*Rev. de Psych.*, February.

Speedy Cure of a Long-Standing Case of Borborygmus.—Veire has reported a case of a girl, aged 15, who for more than two years has been troubled with borborygmus. The noises were so loud that they could be heard in the next room. After an attack of borborygmus had continued several hours a great quantity of gas would be brought up and for a short time the noises would cease. Veire made a diagnosis of ectasia and ptosis of the stomach. He prescribed a close-fitting bandage. A month afterward the patient stated that from the time when the bandage was first applied the noises and formation of gas had entirely ceased.—*Bulletin Général de Thérapeutique.*

Evisceration and Shock in Abdominal Surgery.—L. Tixier's monograph is based upon long experience with Fochier, Ollier, Poncet, Jaboulay and Pollosson, and extensive experimentation on dogs and tests on the cadaver. He states that in all operations performed on account of fresh contusions and penetrating wounds of the abdomen, a rapid evisceration for the purpose of obtaining information is imperative, if the operation follows soon after the injury and there are no adhesions nor meteorism. In chronic ileus it is less urgently indicated, but if deemed necessary it can be done, as the intestines are not very sensitive except during acute exacerbations. In acute occlusion, when the seat of the trouble is unknown, complete evisceration is much to be preferred to drawing out the loops separately, if the operation is prompt. In tardy operations the intestines have become too sensitive and an artificial anus is recommended by many, if there is no internal strangulation nor invagination. Evisceration is to be avoided in acute peritonitis, unless necessary to locate a fresh gastric or intestinal perforation. In tuberculous peritonitis it is indicated in order to increase the curative effect of the simple laparotomy. With a certain amount of meteorism the incision in the linea alba is preferable, but if the intestines are flabby they can be eviscerated through a lateral incision. He finds that a healthy peritoneum in dogs does not react with shock if the evisceration does not last longer than ten or fifteen minutes, while the reflex phenomena appear at once and are very severe if the peritoneum is inflamed or otherwise injured. Dry gauze produces much more violent reflex action than warm moist gauze. He therefore advocates moist asepsis; also ether narcosis.—*Cbl. f. Chir.*, March 26.

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SATURDAY, APRIL 30, 1898.

MILITARY MEDICINE OF THE DAY.

From many sources it is learned that smallpox is now rife in Cuba, and many have expressed uneasiness lest the new levies of troops, many officers and men alike inexperienced, might suffer from smallpox. The assumption is a gratuitous one, for without question all State troops will be vaccinated at the different State rendezvous. This vaccination and revaccination so far as the militia are concerned, need not be done until the men are mustered into the United States volunteer service, as many of them will doubtless have to return home after the rigid physical examination which the regulations require. The percentage of loss is considerable, but their places can easily be supplied from among the thousands awaiting opportunity for enlistment, but while at the rendezvous awaiting orders to the field, the entire force should be properly vaccinated, or revaccinated as required in individual cases. In this war the United States should not lose a single man from smallpox. So far as yellow fever is concerned, let it be repeated that the open mountain country is safe. It is the infected houses and the foul drains, stagnant water and crowded tenements, filth and confined air, that furnish breeding places for Yellow Jack. The alcoholic and those enfeebled by disease, have least resistance, and soonest fall victims.

The code of hygienic rules just published by Surgeon-General STERNBERG fully meets the present requirements.

Havana can be made as healthy as any city in the tropics, if it were thoroughly policed, and the infectious centers dealt with as would be done in our own cities. The talk of dredging the bay is senseless. The only feasible plan to purify the bay is to build the long-talked of canal to establish a current, to destroy the wooden infected wharves, and build stone sea walls. Then with sanitary attention the city could be made clean. This plan however costly will be effective and economical, if we consider the vast losses inflicted upon the world in the past.

The Spanish government has never pretended to disinfect houses, to destroy fomites, to purify the stagnant arm of the bay, or the festering wharves, but on the contrary has thus for centuries been *particeps criminis* in sending death-dealing microbes throughout the world. There has however been no unkind discrimination. Spain has kept on sending sick troopers into the old infected military hospital, with utter indifference, and the offspring of the grandee who came to sit at the taxgate suffered the same fate as any other non-immune. What Great Britain has done with Kingston may be easily repeated in the Cuban cities if the Cuban authorities, when they control, will bend their energies to that end.

THE "INSANITY DODGE."

It is notorious enough that the plea of insanity in criminal cases has fallen into popular discredit and the term "insanity dodge" is characteristic of the common notion, in this regard. That this popular idea is to a certain extent erroneous is also true enough, though it may not be so easy to convince the average layman of the fact. Indeed the very cases that have made the plea unpopular may be and often are the ones in which it is most justly urged; the public furor for the execution of some imbecile or paranoiac whose crime has especially aroused popular reprobation not infrequently doubly blinds justice and leads to what is hardly morally better than lynch law under its forms. Sir JAMES MACKINTOSH or whoever else it was that made many years ago a rather formidable charge of judicial murder against the then existing English law on this account would were he living still find many instances in modern practice in this and his own country to warrant his accusations.

On the other hand it must be admitted that the plea is far too often utilized to aid undoubted criminals to escape the due punishment of their crimes. This has been the more easily accomplished by the aid of the very proper feeling that it is better to let the guilty escape occasionally, rather than to risk the unmerited punishment of an irresponsible and legally innocent individual. The fact also that there has been no legal standard of medical expertness has been an important factor in the production of the miscarriages of justice in either direction; the opinion of the skilled alienist has counted for no more than that of any other medical witness however really unqualified he may have been in this particular specialty. The result has been in this particular specialty. The result has been to bring all expert medical testimony into discredit and as a profession we have suffered.

To remedy this state of affairs by legislation has so far seemed a difficult task and it can not be claimed that the efforts in this direction have any where as yet been a brilliant success. Legislators are hard to convince on a point where their prejudices can be aroused against the desired measures and they are more than ever liable to be suspicious of what may seem to them to be legislation in favor of a single professional class. The "one man as good as another" idea has to be combatted to some degree in effecting such legislation, and its political bearings and possibilities are ever present in their minds. It is somewhat of a satisfaction therefore to find as we do that in one State at least a little advance has been made by judicial decision and where legislation has failed, judge-made law has stepped into the breach. According to an editorial in the *Chicago Tribune* of April 21, the supreme court of Iowa has decided that whenever a question is raised as to the sanity of the defendant in a criminal trial, a special trial for insanity shall be at once ordered and if insanity is found to exist by a jury of medical experts, the individual is sent to the insane ward of the penitentiary for an indefinite period. If on the other hand he is found sane the question is considered disposed of and the criminal trial proceeds. The editorial account does not state whether or not he is under particular surveillance in the insane ward and that there is any further report made as to his mental condition. It would be a manifest injustice to commit an individual as yet unconvicted of crime to associate indefinitely with insane criminals, and the possibilities of *habeas corpus* suggest themselves as likely to be invoked very early in such a case. It would be equally unjust also and against good policy to have such a person let loose upon the public because the jury had made a mistake that was evident to the closer observation of the prison physician, or because another judicial opinion has been pronounced that he was unjustly detained. The solution of the difficulty is not perfect under such conditions; a notorious criminal might soon be pronounced recovered and, so far as anything is stated to the contrary, could be turned loose again upon the community. The better way would be, it would seem, to have the detention ordered for purposes of observation, and in case it should appear that the insanity was simulated or merely temporary since the commission of the crime, the person could, on his discharge from the insane ward, be tried for his offense in the regular way. Such a practice has been in vogue in times past in certain counties in Illinois, where on the appearance or claim of symptoms of insanity in a prisoner awaiting trial, he was sent to an asylum with a request that before his release the authorities should be informed so that they could take him out to stand his trial if thought proper. In this way no injustice was done in cases of genuine mental derangement, while merely temporary alienation or simulated insanity were no bar to final conviction and punishment for crime.

The decision of the Iowa supreme court is, however, an advance upon the old practice, under which it was possible for a clever criminal with an able counsel to sometimes escape punishment for offenses against the law. That this is or has been as frequent an occurrence as the public commonly believes, is very doubtful; there is generally at least some grounds for the plea of insanity when it is successful. The term "insanity dodge" is indeed applied more often to cases where the plea is perfectly legitimate than to those in which it is a subterfuge to defeat the law and help a sane criminal to evade the due penalty of his offense. The lunatic's criminal act is often more liable in fact to be such as will arouse public indignation and lead to a popular outcry for its punishment than is that of the sane and artful criminal, who is much more likely to act so as not to excite feelings that may be too dangerous for himself.

There are many in the so-called criminal classes who are so near the boundary of mental soundness as to make a plea of insanity in their case at least plausible. There are others again who are clearly over the line in some respects, and who yet may be more or less responsible for their criminal acts. The law, recognizing no intermediate stages between sanity and insanity as regards responsibility, creates infinite possibilities of injustice in special cases. The result is that our penitentiaries abound in cranks, while occasionally a rank criminal is turned loose unpunished for his offenses. The remedy, if there is any, is not to be found in railing at the "insanity dodge" or condemning lunatics alike with the sane criminals. A temporary commitment to the care of a skilled alienist diagnostician would be the best and most natural solution of the question, but this is apparently not always practicable under present conditions. We are still left to the discretion of judges and the fallibility of juries where legislation has failed to meet the demands of medical science and common sense in this important matter.

WITCHCRAFT EPIDEMICS IN THE UNITED STATES.

Some years ago the *Popular Science Monthly* devoted no little editorial space to what it called the recrudescence of superstition. In this discussion "Christian science," folklore medicine, charms, etc., were regarded as a revival of fifteenth century practices in the closing nineteenth century. In truth, however, these were simply atavistic survivals of prehistoric fetichism which had persisted in popular folklore. They were pushed to the front by accidental wealth-getting by people in the lowest grades of culture. Chicago, from its cosmopolitan population, is peculiarly liable to these fetichistic explosions. In Chicago demons are still exorcised from the insane

by Italian ecclesiastics, as more than one medical superintendent of the County Insane Hospital has had reason to know. Germans of the lower rural middle class still believe in "magic trees." "Dr." Paul Wachter, an ex-barber was lately sent to the penitentiary at the instance of German politicians for pocketing money from them to put into a "magic tree" as a cure for ailments.

The "witch doctor" is still a potentate among the Pennsylvania Dutch. "Witch Doctor" Amend of Pittsburg, who died in 1894, earned till his death $15,000 yearly for detecting witches. In three instances his advice, given along the old witchcraft-finding lines, nearly led to murder by an infuriated mob. The latest witchcraft epidemic in the United States has occurred in West Virginia. The defectives of large European cities were sold to certain planters of Virginia for a term of years and were allowed to redeem themselves at the end of these. Many of these redemptioners escaped to form the mountaineers of Virginia. Among this population has occurred the latest witchcraft epidemic. Near Lewiston, W. Va., four children of one family were seized with epidemic hysteria of a convulsive type. One was a 10-year-old boy and the others were girls aged from 11 to 15 years. Under suggestive cross-examination the boy claimed to be bewitched and charged an old man and woman with the crime. The local witch doctor declared that the child's accusation was well based. Effigies were made of the old man and woman and were shot at with silver bullets. The effigy of the old woman not being hit she was hunted into the forest during a wild storm and has not been seen since. The witch doctor then filled a bottle with needles, pins, and water and put it on the fire to boil. The first person who appeared after it began to boil and asked a favor was the witch. The old man who had previously been accused called to borrow some powder. He would probably have been killed immediately, but the bottle exploded, sending its contents into the assembled crowd, whose consternation permitted him to escape. The children still continued to have convulsions and the whole community became excited. Under their advice the father changed his witch doctor for another, who made grand preparations to work a potent counterspell which would take nine days to develop. Meanwhile the county authorities had heard of the disappearance of the old woman and sent Dr. DANIELS and Dr. HUMBLE to treat the epidemic. Under their careful management the convulsions of the children disappeared. Before this several other children had been attacked, some of whom had become so insane as to require hospital custody. According to Dr. HUMBLE, the belief in witchcraft is widespread in the community. One old lady described to him with all sincerity that a certain old woman had fatally bewitched her sheep and cows. The same witch would have killed her son by spells had these not been neutralized by a witch doctor with powerful incantations.

Nearly all the "witch doctor" therapeusis here employed was gravely collected into a respectably bound and printed volume and published at Harrisburg, Pa., in 1853. This hoodoo pharmacopeia enjoys an interstate as well as a local reputation in Pennsylvania, West Virginia and Ohio. When such gross superstitions survive and even control newspapers (as witness the clairvoyant columns) through the editor being made such by accidental fortune, it is hardly surprising that the eighteenth century patent medicine man and the "specialist for every disease human flesh is heir to" should have such a prominent place in newspaper esteem. If it take so long to kill the witchcraft delusion which the medical profession (in the person of Dr. REGINALD SCOTT) scotched in the sixteenth century, the survival of the kindred delusions mentioned is hardly surprising.

PANCREATIC COLIC WITH GLYCOSURIA.

A few years ago when the results of a series of interesting experiments and pathologic researches were placed before the profession many physicians supposed that a frequent cause of diabetes mellitus had been found in pathologic changes in the pancreas; for extirpation of this gland produced glycosuria in animals, as does also serious disease of the organ which materially interferes with its function. Increasing experience has, however, shown that comparatively few cases of diabetes are dependent upon pancreatic lesions, for pancreatic disease is not common, and lesions involving the entire gland are still more rare. In connection with this subject the report of a case by POLIAKOFF of Moscow, in a recent number of the *Berliner Klinische Wochenschrift*, is of interest.

A man of 28 years, without any pathologic history, who had always been in good health, had suffered for a period of ten weeks, without apparent cause, from violent epigastric pain, chiefly felt along the border of the left ribs, near the vertebral column and radiating into the left hypochondrium. In the space of three weeks five attacks had been present, accompanied by vomiting. After these attacks the patient remarked that he was losing flesh, that he was feeble, but that his appetite was distinctly increased and that polydipsia was marked.

An examination at this time by Professor ZAKHARINE showed that the patient was suffering from distinct polyuria and that glycosuria was pronounced. Pressure over the kidneys and over the biliary ducts failed to produce any pain, but exploration of the epigastrium revealed a painful spot over the pancreas, or in other words just above the umbilicus. There was however no tumor. The wasting, pallor, dyspepsia, polyphagia and general feebleness seemed to make up

the diabetic complexus and because of the character of the pain and its position it was considered that the patient was suffering from a pancreatic colic, probably due to the presence of a stone in the pancreatic duct. Proper regulation of the diet so far as glycosuria and the development of calculi is concerned, caused a disappearance of the trouble so that no further return of the disease appeared during the following year, so that it is probable that the stone escaped into the intestine and that other stones were not formed which might produce similar symptoms. While a postmortem did not confirm the diagnosis in this case POLIAKOFF believes that it was undoubtedly one of pancreatic diabetes. It will be remembered, however, in this connection that in 1894, NIMIER, who had found pancreatic calculi at autopsy with alterations in the pancreas, asserted that such a find was not indicative of pancreatic diabetes, unless by a process of sclerosis a total obstruction of the glandular tissue had resulted. That is to say, the diabetic trouble only becomes constant when such glandular lesions result. In POLIAKOFF'S case the mere temporary obstruction of the duct was sufficient to pervert the function of the gland so that temporary glycosuria resulted.

Naturally, there is much difficulty in making a differential diagnosis between pancreatic and hepatic colic. FRIEDREICH believes that such a diagnosis is almost impossible. On the other hand, LICHTHEIM has published a case in which he made a diagnosis with the following symptoms. Severe colic, with violent pain in the epigastrium, vomiting and fever, diabetes which continued for a considerable time, and a fatty diarrhea. Fatty diarrhea is not, however, a necessary symptom in making such a diagnosis, but the stool should always be watched and carefully examined in order that pancreatic calculi that pass into the intestine may be discovered. It is interesting to note in this connection that LANCEREAUX observed three cases of obstruction of the pancreatic duct out of fourteen cases of pancreatic diabetes; and that FREYAN has seen diabetes follow a calculus in the pancreas which the autopsy showed to have caused complete atrophy of the gland and that FLEINER has seen marked cardialgic pain in patients who had inflammation of the pancreas due to lithiasis.

CORRESPONDENCE.

Dr. Klebs' Ameba of Yellow Fever.

WASHINGTON, D. C., April 20, 1898.

To the Editor:—If Dr. Klebs had taken the trouble to read my report, published in 1890, he would have ascertained that he is not the discoverer of his supposed amebæ. These bodies were first observed by Councilman in 1889, and for a time were believed by him to be parasitic amebæ, but upon making comparative researches this view was found to be untenable, as is shown by the italicised portion of the following quotation:

REPORT OF DR. WILLIAM T. COUNCILMAN.

"The most interesting results were obtained from the examination of the liver. It has long been held that fatty degeneration of this organ was one of the most characteristic lesions of yellow fever, and it was found to a greater or less extent in all of the sections examined. It varied greatly in intensity in the different cases; in some comparatively large areas of liver tissue, which showed very little degeneration, were found, in others only here and there a few normal liver cells were seen. This lesion, however, does not seem to me to be the most important one of the organ. When sections of the liver are deeply stained with eosin and subsequently with a nuclear stain, either hematoxylin or methylen blue, a very peculiar appearance results. When such sections are examined with a low power the liver cells are found to be stained a faint reddish blue or purple color, the nuclei being a deep blue or purple. Among the liver cells or in place of them a great number of bodies stained intensely red with the eosin are found when examined with a high power. These bodies are found to differ entirely from the liver cells. They are sharply circumscribed, are highly refractive, and are composed of a perfectly hyalin mass containing numerous vacuoles. Their size varies greatly; in some cases they are no larger than a leucocyte, in others as large as two liver cells. They are found inclosed in liver cells, otherwise perfectly normal, and in some cases they entirely take the place of these in the liver beam-work between the capillaries. In some cases examined they apparently made up the mass of the tissue, only here and there a portion of a liver cell or a nucleus of such being seen. Sometimes, especially where the liver tissue was most scanty, along with these definite circumscribed masses more or less granular material was found which stained in the same way. These bodies were generally round or more or less irregular in form. In some of the liver cells small hyalin masses staining in the same way were found which were not so sharply circumscribed as the larger bodies. They were found most abundantly in the cases where the fatty degeneration was most extreme, but the most striking pictures were obtained where the liver was least altered.

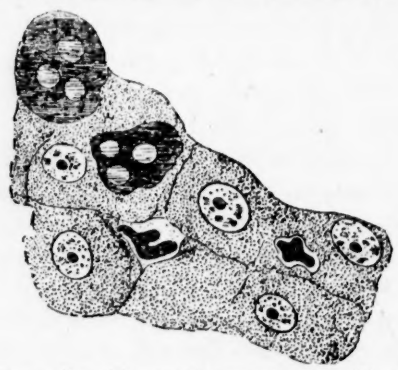

FIG. 1.—Liver cells, with necrotic masses, and small masses between and in the liver cells.

"In a few instances liver cells were found which only differed from the normal in being more coarsely granular, the granules staining with eosin but not so distinctly as the eosin staining bodies, and the nucleus stained more faintly blue than the nuclei of the surrounding liver cells. In most cases these bodies were without any nucleus; in others, a nucleus was present. This always was at the periphery, and generally took the long irregular form of the nucleus of a wandering leucocyte. Polynuclear leucocytes were numerous in all the livers examined. In some cases there were well defined groups of them in the capillaries and in the liver beam-work between, and, as it seemed, often in the red-stained bodies. In several specimens there were hemorrhages in the liver, large areas being occupied by red blood corpuscles, between which the red bodies were often seen. This peculiar condition of the liver is possibly made more clear by staining the sections deeply with picrocarmine. In sections so treated, these bodies stain an intense bright yellow with the picric acid. Concerning the nature of these bodies there can be little question. *When first seen it was thought that they were probably some form of lower organisms, possibly amebæ, but a more extended study showed that this could not be so. Bodies in all respects similar to them were found in rapidly advancing cases of cirrhosis of the liver, in phosphorus poisoning, and in other cases of rapid fatty degeneration, but they are particularly found in cases of acute yellow atrophy of the liver.* Areas were found in sections from this which were very similar to the advanced cases of yellow fever liver. It must be considered that in yel-

low fever, along with the fatty degeneration, there is a necrosis of the liver cells, which sometimes affects only portions of the cells; at others the entire cell. Almost every change leading up to the formation of these bodies could be seen. The exact relation of the fatty degeneration to the necrosis could not be determined. The necrotic masses were found both in intact liver cells and in those which had undergone fatty degeneration. In the latter cases it seemed probable that the necrosis preceded, or at least accompanied, the degeneration. If it only represented a necrosis of the small remnant of cell protoplasm between the fat drops it is difficult to see how so large a body could be formed from this. When the necrotic masses were found in the liver cells they were nearly always at the periphery of the cell next to the capillary.

"Although these necrotic masses were generally found in the beam-work of liver cells, careful examination showed them frequently to be in the hepatic veins and in the capillaries. It would have been interesting to have examined sections of the lungs to determine what part they might play in the formation of emboli."

Figure 1 is a reproduction of one of the figures illustrating my report, and is made from a drawing by Dr. Councilman. For additional illustrations I refer to Figures 10, 11, 12, 13, 14 and 16, all of which are reproductions of Dr. Councilman's drawings.

GEO. M. STERNBERG, M.D., LL.D.,
Surgeon General, U. S. Army.

ASSOCIATION NEWS.

Transportation Rates.—The following has been received from the Committee on Transportation appointed by the AMERICAN MEDICAL ASSOCIATION at Philadelphia, Pa.:

PITTSBURG, PA., April 25, 1898.

To the Editor:—We have assurance that other railroads east will follow the liberal action of the Western Passenger Association, and also give to the members of the AMERICAN MEDICAL ASSOCIATION one way rate plus two dollars for round trip and thirty days limit with stop over privileges west of Missouri River, and for those who want to go farther west at reduced rates to visit points of interest, there will be a low rate round trip from Denver to visit Salt Lake City at about $18.

Yours very sincerely,
W. H. DALY, Chairman.

Liston H. Montgomery, Secretary. William Pepper, X. C. Scott, C. M. Drake, H. O. Marcy, J. W. Graham, J. D. Griffiths, Austin Flint, Committee.

The JOURNAL Special Train will go via the *Burlington* Route from Chicago.

Preliminary Announcement of the Committee of Arrangements.—The Committee of Arrangements announces that preparations for the coming meeting are well advanced. A large number of prominent men have signified their intention to be present and read papers, and an excellent scientific program is assured. The indications all point to a large and successful meeting.

Convenient and ample accommodations have been secured for the General Sessions, Section work, Registration and Exhibits.

The entertainment of members and their families is being planned on an elaborate scale, and the Committee promises all who come a most enjoyable time.

Denver is an interesting city, and the State offers many and varied attractions to visitors.

Local excursions are being arranged to take place after the meeting that all may have ample opportunity of visiting various points of interest in the State and seeing the best scenery of the Rocky Mountains.

The following is a list of the principal hotels of Denver with the rates agreed upon for the meeting:

The Brown Palace Hotel, 17th Street and Broadway. Take 17th Street (red) car to Hotel. European plan, $1.50 per day and upward. American plan, $3.00 to $5.00 per day and upward. These regular rates will apply during the meeting for available rooms if no reservation has been made. For reservations and rooms to be occupied by one person only, application must be made to Hotel for rates.

The Windsor Hotel, 18th and Larimer Streets. Take 17th Street car to Larimer Street. American plan, $2.00 per day; room with bath, $2.50 per day.

The Albany, 17th and Stout Streets. Take 17th Street (red) car to Hotel. American plan, $2.00 to $3.50 per day.

The Markham Hotel, 17th and Lawrence Streets. Take 17th Street car to Hotel. European plan, $1.00 per day and upward.

All reservations at the Albany and Markham must be for the full term of the Meeting, and be paid for whether occupied or not unless canceled ten days in advance. They reserve the right to place persons occupying a room alone in a single room.

The New St. James Hotel, Curtis near 16th Street. Take 17th Street (blue) car to Hotel. American plan, $2.00 to $3.50 per day.

L'Imperiale, 14th Street and Court Place. Take Colfax Avenue car to Court Place. American plan, $2.00 to $3.00 per day.

Metropole Hotel, Broadway near 17th Street. Take 17th Street (red) car to Broadway. European plan, $1.00 to $2.00 per day. $1.00 rooms, $1.50 if occupied by two persons. No reservations made.

The Oxford Hotel, 17th and Wazee Streets. Two blocks above depot. European plan, $1.00 to $3.00 per day. An extra charge for two persons in one room.

The American House, 16th and Blake Streets. Take 16th Street car to Blake Street. American plan, $2.00 per day.

The above hotels make no extra charge for reservations or for persons occupying a room alone except as stated.

The Hotel Broadway, Cheyenne Street and Broadway. Take Colfax Avenue car to Cheyenne Street. American plan, $1.25 to $1.50 per day.

The Vallejo, 1420 Logan Avenue. Take Colfax Avenue car to Logan Avenue. American plan, $2.00 per day and upward.

The Devonshire, 14th and Logan Avenues. Take Colfax Avenue car to Logan Avenue. American plan, $1.50 per day and upward.

The Albert, 17th and Welton Streets. Take 17th Street (red) car to hotel. European plan, $1.00 to $1.50 per day.

The Aldine, 1013 Seventeenth Avenue. Take 17th Street (red) car to hotel. American plan, $1.25 per day.

The Richelieu, 1727 Tremont Street. Take 17th Street (red) car to Tremont Street. European plan, $0.50 to $1.00 per day.

The Earl, 1430 Tremont Street. Take Colfax Avenue car to Tremont Street. American plan, $1.50 to $2.00 per day.

Glenarm Hotel, Glenarm and 15th Streets. Take Colfax Avenue car to hotel. European plan, $1.00 per day and upward.

The Bonaventure, 18th and Glenarm Streets. Take 17th Street (red) car to Glenarm Street. European plan, $0.50 to $1.50 per day.

The Drexel, 17th and Glenarm Streets. Take 17th Street (red) car to hotel. European plan, .75 to $1.50 per day.

These hotels make small extra charges for two persons occupying same room. No charge for reservation.

Applications for rooms should be made to the hotels direct. For special information apply to ROBERT LEVY, M.D., Chairman Sub-Committee on Hotels, California Building, Denver, Col.

J. W. GRAHAM, M.D., Chairman.
W. A. JAYNE, M.D., Secretary.

Section on Laryngology and Otology.—B. Alexander Randall, Philadelphia, chairman; S. E. Solly, Colorado Springs, Col., secretary. A partial list of papers to be presented in this Section is as follows:

Adenoid Growths in Relation to Deaf Mutism, by A. C. Getchel, Worcester, Mass.

A Fenestrated Tube for Endolaryngeal Operation, by Thomas Hubbard, Toledo, Ohio.

Adenoid Vegetations of the Nasopharynx, by John O. McReynolds, Dallas, Texas.

The Bacillus Aerophilus in Chronic Suppurative Otitis Media, by Lewis S. Somers, Philadelphia.

An Improved Spray Apparatus, by Vard H. Hulen, Galveston, Texas.

Diseases of the Ear in Colorado, by P. F. Gildea, Colorado Springs, Colo.

The Diseases of the Base of the Tongue and Their Treatment, by Robert C. Myles, New York City.

The Faucial Tonsil, Its Relation to the Ordinary Diseases of the Nose and Throat, by G. B. Sweeny, Pittsburg, Pa.

On Phonation, by E. Cutter, New York City.

On the Histopathology of Hypertrophic Rhinitis in Children, by J. L. Goodale, Boston, Mass.

Tubercular Laryngitis, by F. E. Waxham, Denver, Colo.

The Tonsils as Portals of Systemic Infection, by Norval H. Pierce, Chicago.

Twenty-nine Successful Tracheotomies for Foreign Bodies in the Air Passages, with Remarks, by F. Westmoreland, Atlanta, Ga.

The Presence of Polypi and Granulations in Suppurative Diseases of the Ear Not an Unfavorable Indication, by Louis J. Lautenbach, Philadelphia, Pa.

Paper to be announced, by Francis M. Chisolm, Baltimore, Md.

Empyema of Maxillary Sinus, by J. A. Stucky, Lexington, Ky.

Tubercular Laryngitis, by S. E. Solly, Colorado Springs, Colo.

Medical Societies Entitled to Representation in the American Medical Association.—The following additions to the list published in the JOURNAL of April 16, page 929, should be noted: Pennsylvania, the Lawrence County and the Potter County Societies; Minnesota, the Winona County Society; Iowa, the Austin Flint Medical Society.

SOCIETY NEWS.

American Surgical Association.—The thirty-ninth annual meeting of the American Surgical Association was held at New Orleans, April 19, 20 and 21. The proceedings of this session will appear in the JOURNAL in an early issue.

The Omaha Medical Society, at its recent annual meeting, elected officers as follows: Richard C. Mann, President; Elenor S. Dailey, first vice-president; E. W. Lee, second vice-president; J. M. Aikin, secretary; W. R. Lavender, treasurer; D. C. Bryant, B. B. Davis and C. C. Allison, censors; W. O. Bridges, Louis Swoboda and H. B. Wilson, committee on program. The Society has eighty members, meets twice each month and is doing much good work, local and State. Members of the regular profession, while in Omaha, en route to or from the National ASSOCIATION, in attendance at the Nebraska State Society meetings, in visiting the Transmississippi Exposition, will be cordially received by the local members, if they will make their presence known.

South Carolina Medical Association.—At the forty eighth annual session of the South Carolina Medical Association, held at Harris Lithia Springs recently, the following officers were elected: T. T. Earle, Greenville, president; G. R. Dean, Spartanburg, first vice-president; W. G. Houseal, Newberry, second vice-president; E. F. Darby, Lynchburg, third vice-president; E. F. Parker, Charleston, corresponding secretary; T. P. Whaley, Charleston, recording secretary; B. D. Baker, Charleston, treasurer. Drs. Robert Wilson of Charleston and G. R. Dean of Spartanburg were elected to fill the vacancies on the State Board of Health occasioned by the deaths of Drs. Bratton and Taber.

The German Congress of Balneology was held at Vienna in March, Liebreich of Berlin presiding. Kisch urged the necessity of thoroughly equipped laboratories at every watering place, for chemic, analytic and metabolic tests of the waters and examination of patients to individualize treatment. Römpler confirmed the significance of heredity and the infrequency of direct contagion in tuberculosis, mentioning that no case of tuberculosis had occurred among the 263 nurses in the Madgeburg hospitals during the last seventeen and one-half years, nor in his own personnel of 23, some of whom had been in his establishment twenty-three years. Kobert exhibited a new bottle that can be filled without leaving an air space, a great improvement in examining mineral waters, especially those containing iron, as the water does not become turbid in it. Strasser discussed vegetable diet cures, remarking that the lemon cure for gout is now exploded. He observed that the benefits of a vegetable diet in chlorosis are mainly due to the change, as the same favorable effects are obtained with a return to the usual diet. Glax of Abbazia reported the results of twenty-five years study to the effect of balneotherapeutics on the diuresis. He stated that in individuals whose vasomotor system reacts to the slight stimulation of drinking cold water, this will promote diuresis, but not in persons with fever or disturbed circulation. The diuretic effect of cold effervescent waters is still more pronounced, but it is not sufficient to cause the absorption of the exudates in the pleura or pericardium, or of cardiac or renal hydrops. This can only be accomplished by limiting the amount of water ingested and substituting mineral water. This causes a surplus of salt in the blood and dries the tissues, which starts the process of absorption and diminishes the secretions in profuse bronchial catarrh. Some extensive tests demonstrated that with a decrease in moisture of the air from 100 to 71 per cent., the urine decreased from 90.5 to 70.7 per cent. of the fluids ingested. Speaking of distilled water as a beverage, Liebreich asserted that it is a powerful poison, its use liable to be followed by diseases, while the addition of a little salt removes this toxic property. M. Benedikt referred to the fully proven but still unexplained fact of the varying effects of different combinations of waters, urging in conclusion that water-cure physicians should report their failures as well as their successes: "science frequently benefits as much from the former as the latter." R. Buxbaum traced the etiology of certain cases of chlorosis and anemia to a lack of peristaltic action in the bowels, which is necessary for the maintenance of the circulation and pointed out the cure in restoring tone to the bowels. Loebel discussed menstruation in balneotherapeutics, observing that it was an indication to commence or continue the cure in some cases; in others a counterindication. But with proper care there was no justification for the general assumption that the baths were dangerous during the catamenial period. Winternitz extolled hydrotherapeutics in the treatment of round ulcer of the stomach, stating that not only the cardialgia but the pathogenetic phenomena were powerfully affected by it. The gastric pains are promptly relieved by cold sitz baths and by the application of a cold compress on the abdomen, under an air-tight covering. To further the reaction a rubber tube wound in a flat spiral is laid on top of the compress, with a current of hot water kept flowing through it. He controls the gastric hemorrhage by introducing small pieces of ice into the rectum, which produce by reflex action an intense spasm of the vessels of the stomach, and arrests the hemorrhage much more effectually than any medication.

Wisconsin State Medical Society.—The provisional program of the fifty-second annual meeting, Milwaukee, May 4, 5 and 6, 1898, comprises the following papers:

Shall the Manufacturer Do Our Prescribing? by G. J. Haumheimer, Milwaukee.

Diet as a Therapeutic Agent, by Karl Kordenat, Reedsburg.

Oxygen as a Therapeutic Agent, by W. B. Hill, Milwaukee.

The Treatment of Chlorosis, by Carl R. Feld, Watertown.

The Effects of Stimulating Narcotics, a Social Question, by Jno. Madden, Milwaukee.

Osteomyelitis, by H. A. Sifton, Milwaukee.

Intestinal Obstruction, by G. D. Ladd, Milwaukee.

Report of Case of Recurring Multiple Sarcoma Cured by Contracting Erysipelas, by P. O'Keef, Menominee, Mich.

The X-ray in Fractures, by Ralph Chandler, Milwaukee.

Surgical Shock, by A. H. Levings, Milwaukee.

Fractures about the Elbow, by W. A. Batchelor, Milwaukee.

Some Remarks concerning Suitable Treatment Before, During and After Surgical Operations, by J. A. Jackson, Madison.

The General Practitioner and the Surgeon, by T. C. Malone, Milwaukee.

Supplementary Report on a Case of Traumatic Epilepsy Treated by Craniectomy, by H. Reineking, Sheboygan.

Some of My Experiences in Abdominal Surgery, by Jno. Specht, West Superior.

Tuberculosis of the Genito-urinary Organs, by J. R. McDill, Milwaukee.

Medical Treatment of Varicose Ulcers of the Leg, by G. A. Heidner, West Bend.

Cystic Kidney—with Exhibition of Specimen. Anomaly of the Vertebræ, with Specimen, by Dwight Mereness, Milwaukee.

Suppurative Synovitis of the Knee-joint, by D. B. Collins, Madison.

Report of Cases: *a*, Cicatricial Obstruction of the Gall-passages; *b*, Forty Gall-stones Removed from the Cystic Duct with Supsequent Partial Stricture of the Duct; *c*, One Gall-stone of 2 cm. in Diameter Removed from the Duodenal End of the Common Duct; *d*, Two Hundred and Eighty Gall-stones Removed from the Gall-bladder with Perforation of the Gall-bladder and Colon: *e*, Laceration of Middle Meningeal Artery with Exhibition of Specimen, by F. Shimonek, Milwaukee.

The Operative Treatment of Hemorrhoids, by L. P. A. Valentine, Western Union.

The Function of Pathologic Anatomy, by A. J. Burgess, Milwaukee.

Demonstration of Microscopic Specimens, by A. J. Patek, Milwaukee.

Advantages of the Weigert Staining Method in the Study of the Normal and Pathologic Anatomy of the Nervous System (with Demonstration), by H. Reineking, Sheboygan.

Pathology of the Endometrium, by G. A. Kletzsch, Milwaukee.

The Physiologic Action of Bacteria and their relation to the Maintenance of Life, by V. A. Gudex, Milwaukee.

Catgut in Abdominal Surgery, by E. Copeland, Milwaukee.

Immediate Repair of the Perineum, by G. V. Mears, Fond du Lac.

Metro endometritis, by W. E. Ground, West Superior.

Uterine Myofibromata, by C. W. Oviatt, Oshkosh.

The Value of Ligation *en masse* of the Broad Ligaments in Removal of Ovaries and Tubes, with Demonstration of Figure-of-eight Ligature, by F. Shimonek, Milwaukee.

Colpotomy, by A. J. Puls, Milwaukee.

The Structures involved in Perineorrhaphy, by F. B. Robinson, Chicago.

Hysterectomy—Clamp Method, by E. T. Fish, Milwaukee.

The Relation of So called Nervous Diseases to Mental Alienation, by W. B. Lyman, Mendota.

Paretic Dementia, by S. B. Buckmaster, Hudson.

Etiology, Prevalence and Treatment of Hysteria, by U. O. B. Wingate, Milwaukee.

Treatment of Hysteria, by Darwin R. Stockley, Lake Geneva.

The Circulation of the Nervous System, by Herman Gasser, Plattville.

A Case of Amyotrophic Lateral Sclerosis with Degeneration in Goll's Columns and in the Medulla Oblongata, by S. H. Friend, Milwaukee.

The Importance of Early Treatment in Insanity, by Moses J. White, Wauwatosa.

Paresis in a Father and Son with Syphilitic Brain Disease affecting Second Son, by Richard Dewey, Wauwatosa.

Cerebral Syphilis, by Wm. F. Wegge, Oshkosh.

A Few Remarks on Insanity and Early Home Treatment, by R. M. Wigginton, Waukesha.

The Country Doctor in the Practice of Medicine, by W. T. Sarles, Sparta.

Epidemic Catarrhal Jaundice, with Report of Case of Acute Yellow Atrophy of Liver, by C. M. Beebe, Sparta.

Infectious Jaundice, by W. H. Washburn, Milwaukee.

Carbonic Oxid Poisoning, by J. R. Barnett, Neenah.

Diseases of the Climacteric Period, Advanced Life and Old Age, by A. I. Comfort, National Home.

Brain-tire, by James Mills, Janesville.

Atony of the Stomach, by A. J. Patek, Milwaukee.

Delirium Tremens in Moderate Consumers of Alcoholic Beverages, with Report of Four Cases, by R. Elmergreen, Milwaukee.

Three Cases of Toxic Hemoglobinuria; Two Deaths and One Recovery, by G. J. Hirth, Milwaukee.

The Passing of the Family Physician, by E. C. Helm, Beloit.

Pseudo membranous Enteritis, by M. B. Sharp, Madison.

Gastrosuccorrhea vel Gastroxynsis, by F. N. Sauer, Racine.

The Etiology and Treatment of the Diarrheal Diseases of Infancy, by L. Boorse, Milwaukee.

Infantile Scurvy, with Report of Case, by J. F. Pember, Janesville.

Infantile Tetanus, with Report of a Case, by T. W. Nuzum, Broadhead.

Glandular Fever of Children (Drüsenfieber), by S. B. Sperry, Milwaukee.

Infant Feeding, by A. W. Kratzsch, Milwaukee.

Milk and Infant Feeding, by W. C. Bennett, Milwaukee.

Influenza in Children, by Wm. Sweemer, Milwaukee.

Address of Chairman on Ophthalmology and Otology, by G. E. Seaman, Milwaukee.

Results of Operative Treatment for Phryngeal Adenoids, by H. V. Würdemann, Milwaukee.

Macroscopic Specimens of Eye Sections, by H. V. Würdemann, Milwaukee.

The Extraction of Foreign Bodies in the Ear, by E. W. Bartlett, Milwaukee.

The Present Status of the Use of Antiseptics in the Surgery of the Eye, by J. A. Bach, Milwaukee.

Eye Affections in Puerperal Eclampsia, by C. Zimmermann, Milwaukee.

Report of Cases: *a*, Congenital Opacity of Cornea; *b*, Bilateral Congenital Fistula of Lachrymal Duct; *c*, Gumma of Inferior Turbinated Body, by J. Steele Barnes, Milwaukee.

Mydriatics and Myotics in General Practice, by J. A. L. Bradfield, La Crosse.

Some Cases Bearing on the Peripheral Causation of Epilepsy, F. H. Edsall, Madison.

The Country Obstetrician, His Duties, How to Avoid and How to Treat Obstetric Septicemia, by N. M. Dodson, Berlin.

The Care of Cases of Abortion, by M. Caldwell, Waukesha.

The Midwifery Question, by J. Noer, Stoughton.

Eclampsia as an Indication for the Induction of Premature Labor and the Best Method of Performing the Same, by M. R. Hewitt, Milwaukee.

Inversion of the Uterus, by J. T. Scollard, Milwaukee.

Puerperal Infection, Cause, Symptoms and How to Avoid, by J. J. McGovern, Milwaukee.

Chairman's Address on State, Medicine and Hygiene, by G. W. Harrison, Ashland.

How to Prevent the Spread of Infectious Diseases in Our Dwellings, by C. H. Marquardt, La Crosse.

Vital Statistics and Health Laws, by A. F. Fuchs, Loyal.

The Value of Discussions in Medical Societies, by H. B. Hitz, Milwaukee.

Prevention of Nasal Catarrh, by F. C. Rogers, Milwaukee.

Asthma, by J. P. Thorne, Janesville.

Syphilis of the Larynx, by D. S. McArthur, La Crosse.

The Influences of Gastric Disturbances upon Catarrhal Disease of the Nose and Post nasal Space, by C. D. Conkey, West Superior.

The Air We Breathe, by F. T. Nye, Milwaukee.

Address of Chairman in Medico-legal Section, by W. F. Becker, Milwaukee.

Life Insurance, by M. H. Clark, Milwaukee.

PUBLIC HEALTH.

Quarantine Convention.

Held at Atlanta, Ga., April 12, 1898.

The convention was called to order at 10 o'clock, A.M., by Mayor Collier. Rev. Dr. Landrum opened with prayer. Owing to the non-arrival of many delegates, the session adjourned until noon, after the appointment of a credential committee and a committee on permanent organization. The report of the Credential Committee was received at the noon session, allowing all health and sanitary officers present to vote, and allowing each State five votes.

The Organization Committee reported the following officers, who were unanimously elected: President, H. B. Horlbeck, Charleston, S. C.; vice-presidents, E. A. Waugh, Virginia; De Sausure Ford, Georgia; R. L. Harris, Florida; Rhett Goode, Alabama; Murray, Mississippi; J. J. Scott, Louisiana; secretary, J. F. Weissinger, Atlanta. On roll call the States of South Carolina, Virginia, Georgia, Florida, Alabama, Mississippi and Louisiana were found to be represented.

President Horlbeck took the chair and appointed the following Committee on Plans and Resolutions: Drs. Souchon of Louisiana, Waugh of Virginia, Alexander of Georgia, Horsey of Florida, Goode of Alabama, and Haralson of Mississippi.

Resolutions relative to the regulation of quarantines were then introduced by Dr. Horsey of Florida, by Dr. Carter, the representative of the United States Marine-Hospital Service, and by Dr. Haralson. The resolutions presented by Dr. Haralson were adopted at a Montgomery convention twelve years ago. All the resolutions were referred to the Resolutions Committee, with which Dr. Wilkinson and Dr. Carter were invited to sit. An invitation to attend the reception last night

in honor of General Graham was read from the Capital City Club and duly received and acknowledged.

The convention then adjourned until 4 o'clock in the afternoon to await the report of the Resolutions Committee, which went into session at once to agree on a composite report from the resolutions introduced.

Before the chairman of the Resolutions Committee read his report the convention decided to make the regulations to be adopted applicable to yellow fever only, notwithstanding the fact several delegates tried to include smallpox. During this discussion, Dr. Barron, president of the Board of Health of Macon, attacked Dr. Alexander, president of the Board of Health of Atlanta, for taking the position Atlanta was immune from the disease. Dr. Alexander replied in convincing style, and satisfied his hearers that the history of the city has substantiated his position.

The following resolution, recommended by the Resolution Committee, was then unanimously adopted:

Resolved, That this convention approves the plan of having medical inspectors attached to those consulates where yellow fever and cholera are epidemic, with a view of securing for our protection definite information as to the exact sanitary condition and the presence or absence of contagious diseases in such consular district. And that congress be urged to make the necessary appropriations to carry the plan into effect.

The following resolution from the same source was also adopted:

Resolved, That this convention is of the opinion that it is a duty devolving on all nations to take measures to eradicate any plague centers from their territory, and that the existence of such plague centers is a menace to all other nations, and that our State Department be requested to take measures through proper diplomatic channels for the conveyance of this opinion to the governments deemed obnoxious to the opinion as herein expressed.

The convention then unanimously adopted the following regulations, section by section, for the government of disinfection and detention camps, or camps for the shipment of merchandise:

In case yellow fever should occur at any point of the Southern States, the most effective method to prevent shotgun quarantines and their disastrous effects upon commerce is to establish disinfecting and detention stations or camps on the lines of travel by rail or boat.

It is by practical actions that the people will be reassured and not by agreements and persuasions based on words, assurances or legislation. To show the people that all possible care is effectually taken to prevent yellow fever from reaching them is the best and only argument they should yield to.

1. Parties coming from localities infected with yellow fever should not be allowed to enter quarantining localities of the south Atlantic and Gulf States, unless they have had their persons, clothing, baggage, etc., disinfected, and unless they have remained at the station ten days after such thorough disinfection, and places holding communication with infected localities may themselves be held in quarantine.

2. These stations or camps will be erected by the United States Marine-Hospital Service.

3. They will be operated by the United States Marine-Hospital Service.

4. The Marine-Hospital Service will also be requested at an immediate date to prepare at least four disinfecting plants, including four cylinders for furnishing steam disinfection.

5. Medical inspectors from interested States and localities will be admitted to the stations to witness that the regulations are thoroughly complied with.

9. The clothes and baggage will be disinfected by moist steam under pressure.

10. Articles not amenable to this treatment will be immersed in a solution of 1 to 1000 bichlorid of mercury for one hour; or they will be placed in the formaldehyde chamber, fed from a generator for one hour, drying them first and spreading them in the chamber.

11. All articles requiring to be subjected to moist steam shall remain in the steam chamber at a continuous temperature of from 212 to 220 degrees F. for thirty minutes.

12. The persons will then be placed in the department of the disinfected and shall be inspected daily.

14. Upon the appearance of any tendency to yellow fever or any symptoms whatever of yellow fever, they shall at once be placed in a suitable isolated locality.

15. If they develop a case they shall be placed in the hospital of the station.

16. The persons will remain at the station ten days.

17. Persons thus detained will be given a certificate to the effect that disinfection has been practiced and detention of ten days enforced, signed by the resident officer of the United States Marine-Hospital Service.

18. Well authenticated immunes will not be detained, but will be disinfected.

19. Then the persons should be received everywhere and by everybody as being incapable of conveying infection.

20. Articles should not be shipped from dwellings, nor from places contiguous to dwellings, without being disinfected.

21. Class 1.—The following articles should be admitted without disinfection or restrictions of any sort: All new and dry material, unpacked, such as lumber, machinery, new brick, new tiling, bar and sheet iron, tin, steel, agricultural implements—no part of which is textile; iron, ties, stoves, saddlery not upholstered, wagons, new trunks, hardware without packing, lime, ice and salt in bulk, tar, turpentine, rosin, stone, gravel, coal, coke, cement, grain in car loads and cooperage, oysters and fish packed in ice.

22. Fruits, sound, when taken directly and in good condition from clean vessels and transferred at wharves not infected and in good sanitary condition immediately to the disinfected cars for shipment require no disinfection; freight taken directly from clean vessels, inspected and in good sanitary condition requires no disinfection.

23. Live stock and poultry also.

24. All disinfected cars to be placarded and way bills certified to by proper sanitary officers.

25. Class 2.—The following articles will require only superficial disinfection, that is, outside of container, by formaldehyde gas fed from generator: All goods in original wooden or metal packages, not broken or packed in an infected locality. This class embraces boots and shoes in original packages, cotton, dry goods in original cases, leather goods, saddlery and saddlery hardware, drugs and chemicals in solid cases or packages, rubber and oiled clothing, sugar in boxes or barrels, rice in barrels, canned fruits, vegetables, meat and oysters, also condensed milk in solid unbroken boxes, stone, iron or tinware, tobacco and cigars, wines and liquors, cheese in original boxes, flour, grits and meal in barrels, woodenware, butter, tea in caddies, candles in boxes, lard, pork, bacon, oils and paints in tin cans or barrels, soap in boxes, axle grease, iron roofing, saddle-trees, raisins, matches, salted fish, potatoes, onions and apples, molasses.

26. Goods other than textile packed in textile material, not broken in infected locality and kept perfectly dry, do not require disinfection, except the container. This includes coffee, grain and spices in sacks, as also cured hams in canvas.

27. Class 3.—Articles not in the above classes, if they have been exposed to infection, will be disinfected before they are shipped; the efficiency of said disinfection shall be certified to by the proper health authorities. This refers to all merchandise not manufactured in infected locality, but kept in stock for distribution, which has not been exposed to any infection and may be safely shipped without being fumigated.

28. When it has been exposed to infection, then it should be fumigated to be made harmless.

29. When desired, all goods of this character can be made to undergo a treatment of fumigation and disinfection before being certified to by the proper health authorities.

30. Articles mentioned above that can be packed in excelsior, in perforated container, rendering the excelsior and contents capable of disinfection, will be disinfected and passed.

31. Class 4.—During the prevalence of yellow fever in any city, town or locality, no bedding nor household effects from such city, town or locality shall be received for shipment to other points.

32. All certificates and all disinfections are subject to inspection and approval by authorized agents, who may be sent by the various health authorities.

MARINE HOSPITAL INSPECTION.

33. Each establishment packing and repacking will employ and pay a sanitary inspector appointed by the United States Marine-Hospital Service.

34. At the hour of arrival of the workmen at the establishment he will see that they are all gathered in the same place and the doors barred and remain so; also the doors of the rooms where they are at work.

35. They will disinfect the exposed parts of their bodies.

36. They will remove all of their clothing down to the skin.

37. They will don disinfected clothes, which will be clean and left by them the day before and pass through the formaldehyde chamber as above.

38. The sanitary inspector must also be disinfected in like manner as the workmen.

39. They will then only be permitted to open original packages in a previously disinfected room and distribute them and form other packages.

40. When these packages are completed and closed they will be stamped by the sanitary inspector as inspected and safe.

41. During the work the sanitary inspector will watch the work all the time.

42. After the work the workmen will remove their clothing and don their ordinary clothes, which, during the working hours, have been passed through the formaldehyde chamber.

43. The same regulations apply to operators in factories which intend to ship their goods to non-infected localities.

44. In addition, such goods themselves must be disinfected.

45. A general supervisor, employed by the United States Marine-Hospital Service, will check the efficiency of the sanitary inspectors in stated sections or a number of establishments.

46. In case of disobedience of any of the regulations the sanitary inspector will refuse to stamp the packages.

47. In packing goods into original packages only such packing material must be used as has been disinfected within the previous twelve hours.

48. A medical or sanitary inspector from interested States or localities will always be admitted at once into the establishment to see if the regulations are carried out properly.

49. All freight in cars and the cars themselves, and all freight on or in boats and such part of the boats themselves shall in all cases be disinfected by the United States Marine-Hospital Service whenever and wherever that service may deem the same necessary.

FOR THE REGULATION OF THE DISEASE.

At the evening session the convention first adopted the report of the Resolutions Committee concerning the regulation of the disease, which was as follows:

REGULATIONS FOR YELLOW FEVER.

1. Localities infected with yellow fever and localities contiguous thereto, should be depopulated as rapidly as possible, so far as the same can safely be done.

Persons from non-infected localities, and who have not been exposed to infection being allowed to leave without detention and in leaving such place shall be presented with health certificates by the legally constituted health authorities of the place.

1. If an inspection shows that the disease be certainly confined to a few houses, and all persons who have been exposed to possible infection are known, and these houses and people be isolated under observation, the remainder of the town need not be quarantined; should either of these conditions fail, the town shall be quarantined.

2. When practicable, the patient shall be removed to hospital or other quarters little liable to infection, and so situated as to involve a minimum of danger, if infected,

3. If the patient can not be removed, all possible precautions must be taken to prevent contamination of his premises.

4. Those certainly immune to yellow fever may be given free pratique after disinfection of effects.

5. Non-immunes may be permitted to go to places incapable of infection, to remain there during the period of incubation, requiring disinfection of baggage, unless certain that it will remain in such territory.

6. Non-immunes not going to such places, shall, if practicable, be isolated under observation in non-infected quarters, so situated that if fever develops among them there shall be as little danger as possible of conveying infection; their effects being disinfected upon isolation.

7. Such persons as are isolated under observation on account of exposure to yellow fever, shall be so isolated for a period of not less than ten days from the last possible time of exposure to infection. They shall be inspected—twice daily is advised.

8. Premises occupied by, or having been occupied by, a case sick with yellow fever, shall be treated as infected, and be under sanitary control; and such neighboring premises as are close enough for their inmates to receive infection from the above shall also with their inmates be under sanitary control.

9. These premises shall be strictly guarded, and no communication allowed with those outside except under such rules and supervision as will prevent the conveyance of the disease.

10. All possible precautions shall be taken to prevent exposure of the guards and other attendants to infection. If possible, they shall be immune. They shall be under proper supervision.

11. On the recovery, removal or death of a case of yellow fever, the premises small be immediately disinfected, and such neighboring premises as from proximity are presumably infected are also to be disinfected.

12. Coincidentally with the foregoing measures a house to house inspection should be made of the whole community to determine whether other cases exist.

13. In the case of the death of a patient the body shall be disposed of under such sanitary precautions as will prevent the conveyance of infection.

WHEN QUARANTINE IS NECESSARY.

1. If the inspection of a town in which yellow fever exists does not show that all foci of infection, possible fomites and persons liable to develop the disease, are under observation ("in quarantine"), or if cases occur which can not be traced to any known focus, such town shall be subject to quarantine.

2. Those who have been exposed or who come from infected localities shall be required to undergo, in the camp of probation or other designated place, a period of detention and observation of ten days from date of last exposure, before being permitted to proceed to a locality capable of being infected, their clothing and other effects capable of conveying infection being disinfected upon entrance to place of detention. For persons known to be immune to yellow fever, detention is not required, merely the disinfection of their baggage and clothing.

3. Persons who have been exposed may be permitted to proceed, under proper sanitary supervision while passing through infectable territory, without detention, to localities incapable of becoming infected, and whose authorities are willing to receive them, to remain there ten days. The baggage of such persons shall be disinfected unless it is certain they will not return into infectable territory. This exemption from disinfection shall not apply to baggage from an infected house for any point, or to baggage to points which object to receiving it undisinfected.

Note—On account of the extreme difficulty of the health officer determining the ultimate destination of passengers bound for Atlanta, Charlotte, Nashville and similar distributing points or passengers south, the baggage of such passengers should be disinfected.

4. An adjacent town which is in direct communication with an infected town must be considered as being neutral territory, and therefore under quarantine, as shall also be such territory as from its proximity or relations to an infected town can not be pronounced certainly clean.

METHODS OF DISINFECTION.

The following methods of disinfection are considered efficient:

FOR YELLOW FEVER.

1. Apartments or dwellings infected with yellow fever to be disinfected by one or more of the following methods:

(*a*) By a thorough washing of all surfaces of apartments with an efficient germicidal solution.

(*b*) By sulphur dioxid for twenty-four hours' exposure, four pounds of sulphur for each 1000 cubic feet, plus due allowance made for waste.

(*c*) By formaldehyde gas in not less than a 4 per cent per volume strength, and not less than six hours' exposure.

Note—One liter of 40 per cent. solution of formaldehyde gas will evolve about 1425 liters (50.1 cubic feet) of gas at 20 degrees C. (68 degrees F.).

2. Grounds, out-buildings, etc., deemed to be infected, to be disinfected with a strong solution of crude carbolic acid (carbolic acid, crude, 2 parts; sulphuric acid, 1 part; water, 25 parts) or an acid solution of bichlorid of mercury (1500); disinfection of ground preferably by fire.

3. Bedding, wearing apparel, carpets, upholstered furniture and the like to be disinfected by one or more of the following methods:

(*a*) By steam at a temperature of 100 to 102 degrees C.; thirty minutes' exposure.

(*b*) by boiling, all parts of the articles to be submerged.

(*c*) By saturation in an efficient germicidal solution.

(*d*) By thoroughly wetting the surfaces of articles with a 40 per cent. aqueous solution of formaldehyde, and placing them in a closed space for not less than twelve hours.

(*e*) Where surface disinfection is required formaldehyde gas of not less than a 4 per cent. per volume strength and not less than six hours' exposure, or by sulphur dioxid for not less than twenty-four hours.

4. The dejecta from cases of yellow fever to be disinfected by an efficient germicidal solution.

Mails to be disinfected by one of the following methods:

(*a*) By formaldehyde.

(*b*) By sulphur dioxid.

(*c*) By steam.

(Newspapers must be made up in such packages as shall be penetrable to the disinfectant used.)

MISCELLANEOUS.

Articles injured by steam, such as rubber, leather and containers, to which disinfection by steam is inapplicable, to be disinfected:

(*a*) By thoroughly wetting all surfaces with an efficient germicidal solution, the articles being allowed to dry.

(*b*) By exposure to sulphur dioxid.

(c) By exposure to formaldehyde gas.

The application of gaseous disinfection to these articles should be made in a closed space, air-tight or as nearly so as possible.

The following are considered efficient germicidal solutions:

1. Bichlorid of mercury, acid, 1-1000.
2. Carbolic acid, pure, 5 per cent. solution.
3. Trikresol, 2 per cent solution.
4. Solution of formaldehyde, 1-500 (which is 2 parts of a 40 per cent. solution of formaldehyde to 25 parts of water).
5. Solutions of hypochlorite of calcium (chlorid of lime).

FOR THE RAILROAD TRAFFIC.

The following regulations from the Committee as to the government of railroad traffic in infected towns was then adopted

TRAINS THROUGH INFECTED TOWNS.

1. A passenger train to infectible locality shall not stop in an infected town, nor shall the windows or doors be allowed to be open therein; and no communication shall be allowed between the passengers or train crew and the town.

2. Freight traffic through such a town should be without stopping.

In cases where stopping in town is absolutely necessary for freight traffic and also when the town is large, and the infection general, a special crew shall take the train through the town. The relay stations where these changes are made, shall be under sanitary supervision.

3. Sanitary inspectors should also be stationed in town.

Through traffic, i.e., to points incapable of receiving yellow fever infection, to be designated hereafter as "points north."

1. Freight.—Freight in sealed cars can go without hindrance through to destination.

2. Empties.—Empties must not stay in an infected town or be parked in an infected locality. Flat cars must be swept clean.

Boxcars made mechanically clean and dry and sent open to the relay station where they are to be inspected for tramps. From the relay station they should be sent on under seal.

All fruit cars to be disinfected.

3. Mail.—Through mail not distributed south needs no quarantine restrictions save disinfection of bags.

Parcels except mercantile sample packages to be barred.

4. Passenger.—Traffic to points north can be allowed by preventing all chance of such passengers conveying infection en route, either by themselves leaving the train en route or by returning to points south or by fomites; mainly their clothing.

This traffic must be on special cars reserved for these passengers, and preferably on a special train. A sanitary inspector must accompany them through the quarantined territory, under whose absolute sanitary charge the train is.

The coaches which carry these passengers must be disinfected before they return south.

THE DUTIES OF INSPECTORS.

5. Train inspectors must be properly relayed and those running from the infected town should be immune. If they sleep in clean territory they must be immune.

6. Cars should be removed from an infected locality as soon as empty. If not, they should be disinfected where they have been. They should be sent with windows and doors open and carefully inspected at the relays for tramps.

Mail—Letter mail needs no disinfection; newspapers must be disinfected; parcel mail is prohibited altogether.

All train crews from an infected town must be changed and not be allowed to have direct communication with certainly clean territory. This should be done at a non infected place as isolated as possible, a siding rather than a station, and certainly not in a town.

Every man, mail agent, expressman and train butcher, must make this relay, unless we know that he is going north not to return to points south, in which case he is like a through passenger. Pullman crew to be relayed.

None of the merchandise of the train butcher, unless disinfected newspapers be excepted, must pass the relay. No possible fomites must pass the relay to the crew bound north and as little communication as possible—none save such as is necessary for the run of the train is allowed. The relay must be under the supervision of a sanitary officer or officers (two are generally required) whose position is one of great responsibility. At these stations a very careful search for tramps must be instituted.

The camps from the north and south crews should be at a considerable distance from each other, and the run of trains should be arranged so as to have the crews in camp as little as possible. For passenger trains there need be no delay; for freight trains generally there must be and their crews go in camp.

Occasions may arise where it is necessary to guard the southern relay camp by a number of guards, as if it were a camp of detention. It must never be allowed to become infected. If it does the camp must be moved.

Laundry for Pullman cars not to be done in infected places.

Steamboat communication can be carried on:

1. By relays like railroad trains.
2. By supervision of the landings of freight and loading of same, so as to prevent communication between the people ashore and the boat.

It is confessedly difficult, but possible.

FORM OF HEALTH CERTIFICATE.

The convention then adopted the following form of health certificate to be used in the Southern States during the yellow fever epidemics:

Office of Board of Health of ———.

Health Officer ———.

To Whom it may Concern:

This is to certify that Mr. —— has given satisfactory evidence to me that he has been in —— not less than ten days, and, to the best of my knowledge and belief he has not been exposed to the infection of fellow fever, and has not been in any infected or suspected locality for ten days.

Descript on: Age —— years. Weight —— pounds. Height ——. Complexion ——. Hair ——. Eyes ——.

———,

Signature: Health Officer.

———

When deemed necessary affidavit shall be required by the health officer.

The certificate shall be issued without fee.

STATES GOVERNED BY REGULATIONS.

A resolution was adopted instructing the secretary to send copies of the convention proceedings to the governors of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Tennessee and Arkansas, with instructions that they communicate the same to their respective health officers.

The convention decided to forward a copy of the proceedings, which will be published in attractive form, to every member of Congress. Votes of thanks were tendered to the officers of the convention, to Manager Scoville of the Kimball House, to the *The Atlanta Constitution* and *The Atlanta Journal*, and to the railroads for courtesies extended the delegates. The chairman was instructed to appoint, at his leisure, a committee of three, looking to the organization of a permanent Southern Health Association.

The following delegates were present:

Virginia—Dr. E. A. Waugh, Lynchburg; Dr. J. Jett McCormick, Norfolk.

South Carolina—Dr. H. B. Horlbeck, Charleston.

Georgia—C. A. Collier, Atlanta; Dr. J. F. Alexander, Atlanta; Dr. C. F. Benson, Atlanta; Dr. James B. Baird, Atlanta; Dr. Louis H. Jones, Atlanta; Dr. DeSaussure Ford, Augusta; Dr. D. C. Ticknor, Columbus; Dr. R. B. Barron, Macon; Hon. P. W. Meldrim, Savannah; Dr. Ed. Brobston, Brunswick.

Florida—Dr. J. L. Horsey, Fernandina; Dr. R. L. Harris, Orlando.

Alabama—Dr. Glenn Andrews, Montgomery; Dr. J. W. Barcklay, Birmingham; Dr. R. D. Murray, Mobile; Dr. Edward A. Neil, Selma.

Mississippi—Dr. H. H. Haralson, Biloxi; Dr. C. M. Murry, Ripley.

Louisiana—Dr. C. P. Wilkinson, New Orleans; Dr. Edmond Souchon, New Orleans; Dr. Quitman Kohnke, New Orleans; Dr. J. J. Scott, Shreveport; H. R. Carter, New Orleans.

Missouri—Dr. Sam Ayers, Kansas City.

United States Marine-Hospital Service—Dr. H. R. Carter, R. D. Murray.

Railroads—Joseph M. Brown, Atlanta, Nashville, Chattanooga and St. Louis railroad and Western and Atlantic; J. C. Smith, Atlanta and West Point, Atlanta; J. H. Sullivan, Kansas City, Memphis and Birmingham; D. D. Curran, New Orleans and Northeastern railroad; J. S. B. Thompson, Southern railway. Atlanta.—*Atlanta Constitution.*

How Long will Diphtheria Serum Retain its Efficiency?—This question is discussed by P. Aaser, the editor, in the *Tidskrift for den Norske Laegeforening*, March 15, who decides after comprehensive research, that as long as the serum remains clear, even if it is several years old, its efficiency is unimpaired. A slight sediment does not show deterioration, although care

must be taken not to inject it. He also asserts that freezing and then thawing do not affect its action, and suggests that frozen serum may possibly keep indefinitely. The serum is not affected by heat unless sufficient to coagulate it, or of long duration.

Tuberculosis in the French and German Armies.—The dismissals and deaths on account of tuberculosis in the French army have risen from 5.48 per cent. in 1888 to 9.48 per cent. in 1895. The increased mortality is generally ascribed to the grip, which seems to be recurring every year with increasing malignancy. The corresponding German statistics are much less somber, as the general mortality from 1886 to 1891 was only 3 per cent. and it has been about the same since, in which the mortality from tuberculosis is less than 1 per cent.—*Deu. Med. Woch.*, March 10.

"White Death" is the name given by Professor Spatuzzi of Naples, to the consequences of the condition of the poor in that city; death from slow starvation, exhaustion, poverty, degeneration, with anemia, and emaciation. Professor Colajanni asserts that these lamentable conditions are growing worse; the poor get no air, no oxygen, nor even light; but live pell-mell in lodgings that have nothing human about them, but resemble more the dens of wild beasts. The number of inhabitants to a square kilometer is said to be 196 at London; 265 at Paris; 280 at Rome; while it is 939 at Naples, and in the Pendino district it is 1254. The city is supplied with spring water, and typhoid fever has almost completely disappeared, but the general mortality is still 30 to 33 per thousand.—*Journ. de Méd. de Paris*, X 5.

Freire's Cryptococcus Xanthogenicus.—The committee appointed by the government of Brazil, at the request of Professor Freire, have rendered their report, although they do not consider it complete, owing to the lack of a sufficient number of cases of yellow fever, human and experimental, for more thorough research. They describe the micrococcus as a small spheric cell, extremely refrangent, translucent, containing one or more nuclei and cilia, staining readily with anilin stains, not discolored with the Gram, rapidly motile, and measuring nine tenths to one and two-tenths of a thousandth of a millimeter. No micrococcus has been described in literature that can be confounded with it, not even Rosenbach's pyogenes aureus. They therefore consider it a new species, investigated by Professor Freire as the causative agent of yellow fever. Guinea pigs, rabbits and young dogs inoculated with it presented symptoms and anatomo pathologic lesions "very similar to those of yellow fever."—*O Brazil Médico*, March 1.

Insanitary Conditions in a Turkish Village.—Mr. G. W. Steevens, who was the war correspondent of the *Daily Mail*, London, and an aide on the staff of Gen. Edhem Pasha, in the late Greco-Turkish war, has written a book, entitled "With the Conquering Turk," that will attract considerable attention. He gives the following picture of the aboriginal state of a Turkish village in war time: "It was a jumble of huts, partly unmortared stone, partly mud bricks dried into stone and washed by the rain into mud again. The dirty little houses had dirty little courts before them enclosed in high stone or mud walls. Here and there squatted a soldier; here and there a beggar: here and there a black blot, which on nearer view became a Turkish woman in domino. The road that ran through this village was an open sewer; the horses splashed along it hoof deep in filth. In the middle of it dogs were gnawing at a dead donkey, one-half bones and the other half putrefaction. Now and again we had to scramble over heaps of dung as high as a man, and on the top of these played children, pretty, brown-skinned, limpid-eyed girls, with pig tails down their backs and trousers down to their bare feet. These were fat and ruddy enough for children. But the stink of that village was an abiding horror."

National Health Bureau.—The Committee on Legislation of the Trades League offered the following, which were adopted:

WHEREAS, There is at the present time no general system of sanitation and disinfection throughout the United States, guided and controlled by one general head and working in harmony with local and State Boards of Health; and

WHEREAS, The presence of an epidemic of contagious diseases in any part of the country without such general system of control breeds fear and panic from a lack of confidence in the ability of the local Board of Health to control the epidemic within a contracted radius of territory; and

WHEREAS, Localities within hundreds of miles of the infected district quarantine against it, and other places near it, thus resulting in enormous losses to commercial and transportation interests of the country at large; therefore, be it

Resolved, That the Trades League of Philadelphia, an organization of nearly two thousand business firms, earnestly recommends the establishment by the National Government of a commission of public health, to be known as the "National Commission of Public Health," which shall be a bureau in the Treasury Department, and the duties of which shall be to collect and disseminate information with regard to the prevalence of infectious diseases in this and other countries, to collect and publish vital statistics, to prepare rules and regulations for securing the best sanitary conditions of vessels from foreign ports and for preventing the introduction of infectious diseases into the United States and their spread from one State or Territory or the District of Columbia, and, in general, to make investigations, publish information and formulate rules with a view to the preservation of the public health.

Resolved, That the Legislative Committee of the Trades League shall give the subject their careful and prompt attention, with "power to act" as the importance of the subject may demand.—*Public Ledger*, Philadelphia, April 15.

NECROLOGY.

GEORGE W. LEONARD, M.D., born in Newburg, N. Y., in 1847, and a graduate of the University Medical College, died in New York city, April 16. He was a charter member of the Colonial Club, and was once the surgeon of the Seventy-first Regiment N. Y. State militia. A widow and a son are his survivors.

JAMES A. C. MCCOY, M.D., Tacoma, Wash. At the opening of the war he became assistant surgeon of the Forty-ninth Regiment Indiana Volunteers, and later a surgeon in the United States hospital at Mound City, Ill. At the close of the war he went to Indianapolis, where he engaged in practice, but left in 1879 for Washington, where he was appointed physician for the Puyallup Indian agency, which position he held until 1882.

ERASMUS R. GARROTT, M.D., Chicago, died April 19, aged 62 years. Dr. Garrott was born in Maryland, and was graduated from the University of Maryland in 1856. When the civil war broke out he joined a regiment of Colorado rangers as surgeon, afterward, in 1873, locating in Chicago, where in 1876 he became associated with the Health Department. During the smallpox epidemics of 1881, 1882 and 1894, his services were invaluable. At the time of his death he was Chief Medical Inspector of Chicago's Health Department.

ELISHA W. AIKEN, M.D., Boston, April 13, aged 70 years.——S. M. Anderson, M. D., Mattoon, Ill., April 19.——Major Henry McElderry, M.D., chief surgeon of the Department of the Missouri, April 17, at Hot Springs, Ark.——R. B. Rawson, M.D., Woodland, Mich., April 18, aged 62 years.——Andrew Wall, M.D., Cambridge, Ohio, April 17.——Edward D. Wells, M.D., Westminster, Md., April 15, aged 48 years.

MISCELLANY.

The Physicians of Berlin Have Organized a Club to promote social intercourse among the members of the profession, afford a place to entertain visiting medical friends, etc. The project has been greeted with enthusiasm and over three hundred have signified their intention to join.

A Bengalese Proverb.—The Bengalese saying, "Do not wake up a sleeping physician," is supposed to have been based upon a feeling of consideration for the man of healing. But it also brings to mind that English adage about letting sleeping dogs lie; also that other older proverb, *Quieta non movere.*

The Malarial Parasite.—The Surgeon-General of the Army, George M. Sternberg, M.D., contributes to *The Youth's Com-*

panion, for April 28, an article on "The Malarial Parasite." This brings to mind the fact that a few years ago, while stationed in Baltimore, he engaged in experimental researches in bacteriology at Johns Hopkins University, as a fellow, by courtesy of that institution.

Notice of Removal.—The *International Journal of Surgery* will remove May 1, 1898, to the Woodbridge Building, No. 100 William Street, New York.

New Publication.—The *Memphis Lancet* will begin publication July 1, 1898. It will be published on the first of each month, contain fifty-four pages of reading matter, and is designed to furnish the profession of the Mississippi Valley with a progressive and representative journal.

Heredity in the Color of the Eyes.—E. Storen states that in over 74 per cent. of several hundred persons he has examined, the color of the eyes can be traced to inheritance from the grandparent of the same sex on the side of the parent of the opposite sex; boys from their mother's father and girls from their father's mother. — *Tidskrift f. d. Norske Laegeforening*, xviii, 1.

Immunity to Tetanus Conferred by Pneumococcus Vaccination.—G. Tizzoni announces that inoculation with pneumococcus vaccin not only protects rabbits against pneumococcus infection, but also against the smaller fatal doses of tetanus toxin. Tetanus vaccin also renders the animal more resistant to pneumococcus infection but does not save it from death at last.—*Gazzetta d. Osp. e d. Clin.*, March 6.

Removal Notice.—The well known house of Victor Koechl & Co., importers of medicinal preparations, such as antipyrin, lanolin, Behring's antitoxin, argonin, orthoform, etc., etc., announce their removal from No. 79 Murray St. to the new and modern six story building No. 122 Hudson St., corner of N. Moore St. The necessity of obtaining larger and more commodious quarters and better shipping facilities is the reason for making this change.

Etiology of Congenital Dislocations and Curvatures.—Three writers recently have called attention to the probability that congenital dislocations and malformations of the limbs, are caused by an insufficient quantity of amniotic fluid, thus exposing the fetus to mechanical pressure from the walls of the uterus. Weissenburg in Russia; Hirsch, *Virchow's Arch.*, Vol. 148. No. 3, and A. Schanz in the *Ztschft. f. Orth. Chir.*, Vol. 4.

The Antediluvian is Safe.—The antediluvian editor of the *Sanitarian*, who for years has been running a mendicant sheet, seems to have a great fear of an insane hospital. He is protected by his antiquity both from bodily harm or from a commitment warrant. Few judges are likely to commit an old man far advanced in his dotage, whatever may be his delusions and vagaries. He may sleep as sweetly or sourly as his ancient frame will permit. He is safe.

Cure of a Suppurating Osteo-periostitis with the Roentgen Ray.—A rebellious case of osteo-periostitis of the cubitus, that had lasted two years, completely cured by the application of the Roentgen ray, is reported in the *Revista portugueza de Med. e Cir.*, 1897, No. 25. The remarkable effect of the ray was noticed accidentally as a radiograph of the part was being taken; the fistulas began to discharge copiously and contract, the region to swell, etc., and a daily twenty minute application soon healed the lesion.—*Presse Méd.*, January 22.

Chloroform Cholemia as a Complication of Celiotomy.—Chiarleoni reports two cases of severe icterus, extreme pruritus, prostration, somnolence and mental disturbances, pupils immovable and midriatic, one a midwife of 36, the other a young woman of 22. The symptoms appeared immediately after oöphorectomy for osteomalacia in the first case and laparotomy for a cyst in the broad ligament in the other, requiring respectively 25 and 50 grams of chloroform. The symptoms grew worse for six days and then gradually retroceded, disappearing by the twelfth day. He is inclined to ascribe the complications to the action of the chloroform on the hepatic gland, as various investigators have noted the alterations produced in the liver and kidney by chloroform. — *Gazetta degli Osp. e delle Clin.* March 20.

Aseptic Traumatic Fever.—Holmes states that this condition is due to the absorption of pyretogenetic substances formed from the products of the aseptic necrobiosis after traumatisms (*vide* JOURNAL, xxix, p. 730), as Volkmann, Gangolphe and others have confirmed. Pillon has established that the white corpuscles secrete fever-producing substances, by centrifugalizing blood from a horse and injecting dogs with the cells in salt solution. The longer the interval since the isolation, the higher the temperature induced by the injection. He does not venture to say whether this substance is due to the fibrin ferment, the uric acid or the nuclein.—*Cbl. f. Chir.*, March 12.

Chronic Splenomegalic Infectious Icterus is an affection described by Professor Hayem in the *Presse Méd.*, of March 9, with reports of five observations. It is characterized by chronic icterus of indefinite duration, 19 years in one case, with transient paroxysmal attacks, moderate hypertrophy of the liver, pronounced tumefaction of the spleen with progressive sclerosis, digestive disturbances and more or less anemia. A microbe was discovered in the spleen in one case which killed mice in twenty-four hours, resembling the pneumococcus. He considers it probable that the microbian agent comes from the intestines and varies from one case to another. The treatment is symptomatic, addressed particularly to the digestive apparatus. All the cases were accompanied with parenchymatous gastritis, as usually with catarrhal icterus.

Alterations in the Shape of the Trachea.—Simmonds, prosector at the large hospital at Hamburg, has been making a study of casts of tracheas. He found numerous constrictions, dilations and angularities; scoliosis was noted in one-fourth of all the cases. Constrictions produced by the pressure of aneurysms, tumors and latent goiters were frequent, also a groove which he attributes to the pressure of the arteria anonyma. The walls were frequently found ossified and flattened in elderly persons, for which he suggests the descriptive name of "senile saber-sheath trachea." Universal dilation was only noted in one case, probably congenital, but partial ectasia was common, almost invariably in the middle section of the rear wall, in elderly persons, accompanied with atrophy of the wall. His report in the *Mitth. a. d. Hamb. St. k. Anst.* is illustrated.—*Cbl. f. Chir.*, March 12.

The Excess of Ammonia Frequently Noted in the Urine of Infants, is caused primarily, as Czerny has recently demonstrated, by a surplus of acids in the blood. The administration of an alkali would suppress the excess of ammonia. Further research proved that the excess of acids was derived from the fats. The increased acidity and excretion of ammonia may be produced by abnormal amounts of acids derived from the fats, with normal powers of oxidation, or, with diminished oxidation, by acids absorbed by the normal stomach. As we can not assume an unlimited ability on the part of the organism to elaborate ammonia to neutralize the acids, we can now understand better the injury from constant acid reaction. In determining the value of a food in calories, we must also take into account the acids that remain unoxidized.—*Wien. kl. Woch.*, March 31.

Diagnosis in Typhoid Fever.—Barber (*N. Y. Med. Jour.*, April 16) reports a series of tests showing the "Comparative Value of the Diazo Reaction and the Blood Serum Test in the Diagnosis of Typhoid Fever." The serum test proved the most reliable, appearing in every case but one, and appeared in no other disease. The diazo reaction was an advantage in that it appeared earlier in the disease in nearly twice the num-

ber of cases. In almost every case where the serum reaction appeared first the diazo reaction was present on the following day, while in many cases the serum reaction was absent for several days after the diazo reaction was found. He believes that Ehrlich's test is by far the better for the general practitioner, no expensive laboratory being required, while it is easily and quickly made, and with little experience the reaction can be detected in nearly every case. The diagnosis should always be confirmed by the presence of the serum reaction.

New Diagnostic Sign of Measles.—In the *Medical Record*, April 9, Koplik describes in detail a phenomenon previously claimed by him to be a new diagnostic sign of measles. This sign is an eruption which appears on the mucous membrane of the cheeks and lips fully twenty-four hours, often forty-eight or seventy-two, before the eruption on the skin. It spreads and reaches its height just as the skin eruption has appeared and is spreading; it then fades. The eruption consists of small irregular spots of a bright red color; in the center of each spot is the interesting sign, seen only by strong daylight, a most minute bluish-white speck in the center of the reddish spot. They are not so large nor so deeply white as sprue and they are not seen on the hard or soft palate nor after the mouth has been washed. They always maintain their punctate character and do not coalesce. To be seen, it is necessary to evert the mucous membrane covering the lips and cheeks, either with the fingers or a spatula. "One can then see the infinitesimally minute bluish-white specks on a reddish punctate area in beginning measles, and on a more diffuse reddened background in advanced cases, which are absolutely pathognomonic of measles."

Hot Water Potations.—Every drug store which makes a specialty of mineral waters and such things now includes hot water among the refreshments offered to the public. Hot water would possibly be more appropriately included among the medicines, for it is improbable that anybody ever takes it from the same motives that lead a person to order ice cream soda. The relish with which the consumer of hot water gets rid of a cup, however, is quite as apparent as that of those who take more familiar beverages. The confirmed victims of the hot water habit have been known to order their tipple at a particular temperature and accept it only when assured by the thermometer just what the degree of heat is. These patrons are looked upon as more of a nuisance than the others, and the clerks who show patience with them have the satisfaction of knowing in many cases that they are not incurring the risk of loss for their employers. Most of the stores charge nothing for hot water. In others the price varies. Some establishments rank it along with vichy, seltzer and such things at 5 cents. But other places, evidently seeking to discourage the habit, ask ten cents a glass.—*N. Y. Sun.*

Connection Between the Thyroid Gland and Puberty.—E. Hertoghe ascribes a preponderant role to the thyroid gland in both physical and intellectual development, and also a specific action upon the morphologic formation of the genital organs in both sexes. It has long been noted that the thyroid gland develops parallel to the development of the genitalia, but he is convinced that the sexual development results from the thyroid hypertrophy and increased thyroid secretions. Arrested growth or infantilism is therefore due to imperfect development and activity of the thyroid gland, and complete myxedema is the extreme degree of thyroid degeneration. "Dysthyroidism" is principally characterized by arrested growth and absence of puberty, as in cretins. The degree of infantilism depends upon the amount of dysthyroidism, from simple obesity, rhachitism, chondrofetal dystrophia, etc., to anangioplasic infantilism. The dysthyroid etiologic unity of infantilism is proved: 1, by the existence in the same family of different types of infantilism; 2, by dysthyroid antecedents on the part of the parents: 3, by the therapeutic effect of the administration of thyroid product on these different forms of infantilism (*Presse Méd.*, March 9). S. Goldberg also proclaims in the *St. P. Med. Woch.*, March 26, as the results of extensive experimental work and observation, the close connection between dysthyroidism and trophic disturbances in the growth of the young.

Diversity of Action of Antipyretics.—Among the conclusions resulting from a recent comprehensive investigation of the antipyretics, we notice that the hypothermic action of most of the convulsion-producing poisons is due to the excitation of the nerve-centers that arrest the thermogenesis. Anesthetics on the other hand act by paralyzing the thermogenetic centers, and have no effect upon the arresting centers.—*Presse Méd.*, March 9.

Isolated Aphasia as a Premonitory Symptom of Uremic Attacks is very rare. Rose adds another to the two cases on record. The patient had chronic parenchymatous nephritis, under apparent control with milk diet and digitalis. Suddenly acute isolated aphasia developed, followed in a short while with a violent uremic attack, lasting nearly twenty-four hours with loss of consciousness, etc. The aphasia passed away with the attack. He is inclined to ascribe it to auto-intoxication, as the anatomic position and the augular course of "Carnot's apoplectic artery" render it especially liable to be affected by increased pressure in the circulation.—*Gazzetta degli Osp. e delle Clin.*, March 17.

Production of a Mucinoid Substance by Bacteria.—Charrin and Desgrez have isolated, from cultures of the pyocyaneus, a substance resembling the mucin found in meat bouillon, with a phosphorus reaction in the precipitate, which suggests that the mucinoid substance is accompanied with a nucleo-albumin. The microbian cell therefore produces a substance analogous to that produced by the cells of the organism and a whole series of vegetable cells. It is toxic injected into rabbits. They suggest that the bacteria which flourish so abundantly in the course of muco-membranous inflammation may be a factor in the genesis of the mucous secretions. Lepierre finds that the fluorescent bacillus also produces a similar substance, but without the phosphorus reaction, and with other properties which proclaim it a true mucin. It produces the mucin in a number of media, all mineral and peptonized, but not in meat bouillon.—*Presse Méd.*, March 2, and *Semaine Méd.*, March 16.

The Value of the Blister and Revulsive Measures in general has been the subject of heated discussion at the Paris Académie de Méd. for more than half a dozen recent sessions. The majority still favor them for certain purposes, and numerous instances were cited in which great benefit had been derived, but Huchard maintained that the blister had passed away with the seton, etc., and related cases in which severe nephritis had followed its use, adding that the same therapeutic effects could be obtained with less dangerous measures. Ferrand referred to Winternitz's establishment of the fact that irritations of the skin not only induce hyperleucocytosis at the point irritated, but throughout the entire lymphatic system and circulation. He observed that "microbian physiology has proved an evolution of our science rather than a revolution. Facts never die, and the blister is a fact which has seen many generations pass away, and will survive ours."

A Study of the Blind.—Pearce (*Internat. Med. Mag.*, March), gives in an analysis of 180 pupils of the Pennsylvania Institution for the Blind, the following interesting data: Tests for hearing showed a wide range of difference in the acuity of audition between the right and left ear. In the boys the average distance for the left ear was fourteen feet, for the right ear, fifteen feet; in the girls the average for the right ear was thirteen feet, and for the left ear twelve. Forty-six girls, 54 per cent., had constant marked rotation of the eyeball, of which 19

were irregular or nystagmoid, 37 had a less marked slight rotary movement. Five also had nystagmus in the right eye and one in left eye only. In the girls there was no nystagmus. Among the boys 83 per cent. had constant rotary nystagmus, 6 per cent. slight rotary, 6 per cent. lateral alone, and 3 per cent. no nystagmus; 1 per cent. had nystagmus in right eye only and 1 per cent. in left eye only. Of the girls, 58 were partially, 28 totally blind; of the boys, 68 per cent. partially, 32 per cent. totally blind. Specific taint was noted in 6 boys and suspicioned in 6; phthisis diathesis in 28 girls, 33 per cent., and in 13 per cent. of the boys; deformities of the spine in 38 girls and 34 boys. Muscle-jerks were seldom abnormal and skin reflexes were active.

Immunity-Period from Diphtheria Antitoxin.—In the *Boston Medical and Surgical Journal* of March 3, Morrill reports the results of observations in diphtheria immunization as carried out in the Children's Hospital of Boston. Of 1808 patients immunized at least once every twenty-eight days, the amount of serum varying from 150 to 500 units, seven had diphtheria, three from insufficient dosing, two within twenty-four hours of the injection, and two in whom the time of infection came twenty-three and twenty-two days, respectively, after giving an amount which had previously been effective when given every three weeks. Of 829 who were not given antitoxin, or in whom more than twenty-eight days elapsed after the injections, nine had diphtheria, besides three immunized adults. He concludes: 1. That immunity in any given case, of no matter how thorough exposure to diphtheria, may be conferred, for at least ten days, by the injection of a small dose (100 250 units) of serum, provided it is given twenty-four hours previous to actual infection. 2. That a larger dose (250 units for a child of two, up to 500 units for one of eight or over) will confer safety for three weeks, or, to be a little more conservative, twenty days, under similar conditions. 3. That no harm will result from the treatment in a vast majority of cases of *sick* children, and probably in no case of a healthy child, provided the serum used is up the present standard of purity.

A New England Worthy; an Early Reformer.—At Wayland, Mass., the tomb of Dr. Hayward exists that shows that there were reformers before the mugwumps. Its epitaph reads:

Here lies the body of Dr. Hayward,
A man who never voted;
Of such is the Kingdom of Heaven.

If we are not mistaken in the identity of the gentleman, he had the advantages of Harvard education and of a walk through the hospitals of London over a century ago. Also, a Reformer in the South.—The following verses from the *British Medical Journal* have the local colors of the bayous and parishes of southern Louisiana. They commemorate the habits of the life of the veteran practitioner, "Ole Docteur Fiset who has got ninety years or so:"

But Docteur Fiset, not moche fonne he get,
Drivin' all over the whole contree;
If de road she's bad, if de road she's good,
When ev'ryt'ing's drown on the Spring-tam flood,
And working for not'ing half time mebbe.

Let her rain or snow, all he want to know
Is jus' if anywan's feelin' sick,
For Docteur Fiset's de ole-fashion kin',
Doin' good was de only t'ing on hees min',
So he got no use for de politique.

Surgical Interference in Cerebral Disease.—In the *N. Y. Medical Journal* for April 16, Fisher gives the following special indications for operation: 1. Fracture of the skull, causing compression with resulting paralysis, epileptic seizures or coma. 2. Meningeal hemorrhages, traumatic or occurring in pachymeningitis hemorrhagica. 3. Tumors of the brain when situated near the cortex of the brain or even in the cerebellum, but not when deeply situated or at the base. When the tumor is not thought to be a removable one, a partial operation may be indicated, as the removal of a large area of the skull often relieves certain marked symptoms of tumor, as vomiting, headache, and convulsions. 4. Localized epileptic seizures of the so-called Jacksonian type. I would include in this class cases, whether due to injury or arising from unknown causes, that is, so called idiopathic epilepsy, if limited to special parts of the body, as the arm, leg, or face, or all three, if only one side of the body is involved. In such cases I would advise the excision of these cerebral centers. This, indeed, results in paralysis, perhaps a permanent form; but in many of these patients we have already a certain degree of paralysis, and in that case we simply increase a previous disability. 5. Cerebral abscess, and especially in the form most commonly presented to us, that following otitis media. I will not include under this head operations in microcephalia or in infantile cerebral hemiplegia with epilepsy, although in some cases, owing to the otherwise hopeless character of these conditions, I am in favor of operative interference.

Medical Colleges in America from a German Point of View.—Dr. S. Placzek of Berlin reviews, in the *Deu. Med. Woch.*, of March 17, the "Student's Number" of the JOURNAL, containing the particulars in regard to the medical colleges throughout the country. He is amazed at the enormous number of such institutions; 148, including the thirteen in Canada, and deplores the low standard for admission that prevails generally, which he states with astonishment, is merely the elementary principles of English, Latin, arithmetic, algebra and physics. He remarks that a number of cities enjoy the luxury of several medical schools at once, allowing them the privilege of amicably competing for students. He appreciates the advance made in late years in lengthening the course in some colleges, but states that it is still too short." A five-year course is none too long. It would certainly abolish the remarkable phenomenon, without parallel of a nineteen-year old physician! But the chief drawback to this plethora of colleges, in his opinion, is the inability to provide trained professors for them all. Institutions of learning can be founded by the "Almighty Dollar," but it is impossible to provide skilled experts to fill all the chairs in these 148 colleges with equal rapidity, even by summoning excellent assistance from Europe, such men as Klebs, van Ackeren, Fehleisen, etc., who happen to be at liberty. In view of this fact "it is not astonishing that out of the entire 148 medical colleges, only eight or ten are to be regarded as of full value." He suggests as a safe-guard against the other 138 that the privilege of conferring the medical diploma should be relegated altogether to a central authority which by its position and the character of its members would afford a guarantee that the privilege would be worthily handled.

Treatment of Urethral Strictures.—Howland (*Medical News*, April 9) writes on "Gradual Dilation Versus Cutting in the Treatment of Urethral Strictures." He says: The best genito-urinary surgeons are now decrying the practice of using the knife at the first sign of a stricture of the urethra. This is good surgery and should be even more generally practiced. Dilation is always advisable and more often successful than surgeons generally believe. The length of period necessary to effect a cure depends largely on the patient and on the stricture, the length of time it has existed, and its location in the urethra, varying from three to twelve months. Many patients prefer the cutting operation to this long treatment, until they understand that with such operations the cure is not as permanent and sounds have to be passed at regular intervals. I have observed the best results from gradual dilation up to and not exceeding 32 French, and if a urethra thus treated can be maintained at a caliber of 28 or 26 French, it is all that will be required. The dilation should be conducted slowly and with great care, and an advancement of more than two sizes at one

sitting not attempted. At the slightest sign of blood oozing the treatment must cease and the irritated membrane treated by instillation or irrigation with some astringent preparation. I have used plain water at 105 to 110 degrees F., one quart at a sitting, with encouraging results. Never allow a patient to pass sounds upon himself. The writer does not believe that all strictures can be cured by gradual dilation, but he does believe that a great number can be.

Gleanings.—The Mexican National Institute of Aerotherapeutics has now a record of 100 patients treated with compressed air, all very much improved, asthma, emphysema, bronchi-ectasia and chronic bronchitis.—*Chronica Med. Mex.*, February 1.——Treatment of soft chancres with a stream of hot air at 42 degrees C. is now being successfully tried by Haralamb of Constantinople.—*Ann. de Derm. et de Syph.*, December, 1897.——Fatal hemorrhage from the eyes of day old infant.—*Inyno Russ. Med. Gaz.*, 1898, 2.——Acute affections of lachrymal sac cured in three weeks with massage.—*Wien. Med. Jour.*, 1897, 7.——Two cases of diabetes remarkably improved with methyl blue.—*Bull. Gén. de Therap.*, January 15.——A case of glanders located in the lachrymal gland, differentiated by bacterial examination.—*Rev. Méd. de la Suisse*, December, 1897.——Unique fatal case of hepatic complications in measles with rupture of the diaphragm.—*Gazz. d. Osp. e d. Clin.* Nov. 23, 1897.——Success of large doses of pilocarpin in arresting and curing severe cases of croupous laryngitis and pneumonia.—*Wien. Med. Woch.*, 1897, 27.——E. Doyen has now a record of fifty successes in fifty-five cases of non-cancerous affections of the stomach operated.——Boric acid the only antiseptic for hemorrhoids, chiefly on account of its analgesic properties.——Normal pregnancy and delivery in women nephrectomized on the right side two years previously for lithopyonephrosis.—*Revue de Chir.*, March 10.——Twelve cases of tuberculosis of the bones of the skull. All except two involved the frontal bone. Usually several foci. Course mild and frequently terminated in recovery. No cases of connected meningitis observed.—*Cbl. f. Chir.*, March 12.——Classic lesions of tabes and poliomyelitis found at necropsy of case of chronic saturnine intoxication. No syphilitic antecedents.—*Wien. Med. Woch.*, 1897, 18.——Remarkable success of itrol (arg. citric. pur.) in forty cases of venereal ulcers, including several with gangrene, reported by O. Werler—*Memorabilien*, March 14.

Litholapaxy in India; A Series of 400 Operations.—Dr. Richard Baker, formerly civil surgeon at Hyderabad, Scinde, has published, in the London *Lancet*, 204 additional cases of litholapaxy, making over 400 cases in his service in India. His earlier series of 200 cases was reported by him in the same journal, for October 10, 1896. The mortality was limited to one death in last reported set of cases, or about one-half of 1 per cent. The fatal case occurred after sixty recoveries, and it was followed by 140 consecutive recoveries; this, the author says, is "nothing very unusual" for the surgery of India where the operation has graduated from the position of being still under trial. These 404 cases furnish another example of the remarkable low mortality which attends the operation of Bigelow as it is practiced in India by British surgeons upon native patients, it being in his last series 0.49 per cent. The cases are tabulated and summarized as follows: Mussulmans, 168; Hindoos, 36; males, 200; females, 4; ages under one year, 1; one to three years, 65; six to ten years, 36; eleven to fifteen years, 4; sixteen to forty-five years, 53; forty-six to fifty-five years, 28; forty-eight to sixty-five years, 13; over sixty-five years, 6; average duration of operation, twelve minutes, nineteen seconds; average weight of stone, 2 drams, 46 grains; average stay in hospital, little under two days. Regarding the strikingly successful results of this operation in the hands of surgeons in India, it has been suggested that they are probably to be referred to the enormous number of cases of stone which occur in that country as compared with others, and the greater technic dexterity gained thereby by the operators, and possibly also to some exceptional aptitude on the part of the native to withstand surgical operations. The same proportion of success has not been, and can not be expected to be reached elsewhere.

Dr. Holmes' Examinations in Anatomy.—Prof. William James of Harvard University is a M.D. of the class of 1886, but is a psychologist and not a practitioner. He has a very distinct recollection of the anatomic part of his examination. When he came before the genial Dr. Oliver Wendell Holmes, the latter asked him some questions about the nerves at the base of the brain. It so happened that the examinee was well up on that subject and he gave a pretty exhaustive reply. "Oh, well, if you know that you know everything," said Dr. Holmes, cheerfully, "let's talk about something else. How are all your people at home?" "In that pleasant way," says Dr. James, "I completed my examination in that subject. I do not remember having encountered any difficulties in any of the subjects. The examination for the degree was oral and lasted just an hour and a half. These ninety minutes were equally divided among nine subjects, ten minutes to each. Each of us as he came in took a seat at a desk, behind which stood the professor who was to conduct the examination in that particular subject. The professor asked the questions and we answered them as best we could. Out in the hall stood the janitor beside the big gong, and at the expiration of the ten minutes he pounded the big gong. This was the signal for all the students to get up and change desks, much after manner of your progressive eucher parties. There were two other matters to be attended to before I got my M.D. I had to write a thesis, and I did it. Then I went to the dispensary and took a case for diagnosis and treatment. There was a lump on the back of the man's neck which I diagnosed as a carbuncle, and for which I prescribed hot poultices. It was with feelings of apprehension that I learned later that the patient was suffering from an internal disorder, and the test was on that. However, the examining board were very kind about it. They admitted that my course in diagnosing the first trouble I came across in my patient, namely, the carbuncle, which was plainly apparent to the examiner's eye, was quite natural, and said that my treatment was the proper one. Therefore, I was adjudged satisfactory.

Results in 100 Abdominal Operations.—Shoemaker (*Phila. Med. Journal*, March 26) gives the results of an investigation in a consecutive group of celiotomy cases of various sorts, all the cases being women with gynecologic disorders. Of the 100 cases, 6 died; 2 cases of hysterectomy for fibromata weighing fifteen and one-half and seven and one-half pounds respectively; 1 case of extra-uterine fetation, septic when first seen; one following removal of ovaries in intraligamentory fibroid tumor of uterus, adhesive to pelvis; 1 following removal in severe double gonorrheal pyosalpinx with bowel adhesions, and 1, unexpected, following removal of one diseased ovary and tube and suspension of retroverted uterus. Hysterectomy was done 19 times. In the series 3 were malignant, 8 fibromas, 1 a fibrocyst in an extra-uterine case, 7 were for hopeless inflammatory disease of uterus, tubes and ovaries. He believes that "the uterus is better removed when itself diseased, if large, heavy and retroverted, with poor support, when it has been for years the channel for outpour for chronic discharges, when hemorrhage has been excessive from glandular degeneration of the endometrium. This is especially true in elderly multiparæ. The risks of removal are not great." He, however, is opposed to removal of normal ovaries for nervous conditions, believing in correction of the disease causing the persistent irritation or hemorrhage, as a means of relieving the nervous condition. Thirty-

nine cases with gross anatomic lesions showed marked nervous disturbance and 77 per cent. are cured or markedly improved. In numbers of cases, marked hysteric or other nervous disturbance proved to be only a surface-play of symptoms, while serious pelvic disease had been one of a chain of causes. Hernia in operation wounds occurred six times, in one case a woman, operated on when four months pregnant, who went safely through delivery at term, the hernia occurring nineteen months later. Inflammatory disease of tubes and ovaries, requiring removal, occurred 35 times, extra-uterine pregnancy was present 5 times, cystic tumors of the ovaries 7 times; in 1 case there was a large dermoid; broad-ligament cysts were present 3 times; 5 cases had abdominal tuberculosis. Uterine suspension was done but once as an independent operation for severe symptoms due to retroversion and descent of the uterus. This patient was cured permanently and has remained well more than two years after ten years of suffering. Of the 94 cases surviving operation, 49 (59 per cent. of the cases heard from) are cured after a period of from six months to two years; 32 are improved, though 14 of these are anatomically cured; 4 of the 5 tuberculous cases were improved and 1 cured. The most satisfactory results were in the large tumor cases, then the chronic pus cases in which there was 1 death in 22 cases. He concludes: "As to benign tumors, there are none involving uterus, tubes and ovaries that can not, at the present day, be removed with a comparatively low mortality, depending upon the stage at which the case is seen and upon the skill and experience of the operator in abdominal work, on his surgical judgment and on the organization of assistants and plant, with the aid of which he operates. Very much depends upon good detail work. By the modern steam sterilizer the last excuse for a septic death has been removed. Even the stitch-hole abscess should be the rarest of exceptions and call for rigid explanation."

Colleges.

The Starling Medical College, Columbus, Ohio, held its annual commencement April 14 with a large graduating class. ——The sixteenth annual commencement of the College of Physicians and Surgeons, Chicago, its first commencement as a department of the University of Illinois, was held April 19, with 110 graduates.——At the twenty-sixth annual commencement of the College of Physicians and Surgeons, Baltimore, held April 14, thirty-six degrees were conferred.——The Medical College of Virginia, Richmond, held its annual commencement April 16 and the Albany (N. Y) Medical College, April 20.

Societies.

The following recent meetings are noted:

Connecticut.—The 106th annual of the Hartford County Medical Association, Hartford, April 20.

Georgia.—Georgia Medical Association, Cumberland Island, April 20–23.

Illinois.—County Medical Society, Ottawa, April 26; Fulton County Medical Society, Cuba, April 12; Fiftieth anniversary of the Peoria Medical Society, April 19.

Indiana.—Clark County Medical Society, Jeffersonville, April 12; Knox County Medical Society, Vincennes, April 12.

Kentucky.—Kentucky Midland Medical Association, Georgetown, April 14.

Michigan.—Berrien County Medical Society, Benton Harbor, April 14.

Missouri.—Marion County Medical Society, Hannibal, April 28; Medical Society of City Hospital Alumni, St. Louis, April 21; St. Louis Medical Society of Missouri, April 16 and 23.

New Jersey.—Cape May Medical Association, April 14.

New York.—Binghampton Academy of Medicine, April 19; Oneida County Medical Society, Utica, April 12.

Pennsylvania. — Lackawanna County Medical Society, Scranton, April 12; Lebanon County Medical Society, Lebanon, April 12.

South Carolina.—State Medical Association, Harris Lithia Springs, April 13.

Boston.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the two weeks ending at noon April 20, there were reported to the Board of Health of Boston the following cases of acute infectious disease: Diphtheria 68, scarlet fever 35, measles 70, typhoid fever 11.

ATTEMPT TO BURN A NURSES' HOME.—Within the past three weeks three attempts have been made to burn the Nurses' Home in connection with the Somerville Hospital. Recently fire was discovered in the attic and before it could be extinguished the building was damaged to the amount of $500. On the morning of April 1 a fire was discovered in one of the rooms and the occupants barely escaped with their lives. Later another fire was discovered beneath a sink in the second story.

THE MASSACHUSETTS EMERGENCY AND HYGIENE ASSOCIATION held its annual meeting last week. Reports on the work of organization were submitted and the following officers elected: President, James Minot, M.D.; secretary, Miss Rosa L. Dexter; treasurer, Charles Fry; executive committee, Mrs. Kate Gannett Wells (chairman), Miss Ellen Tower, Mrs. F. H. Williams, Miss Ida Mason, R. W. Greenleaf, M.D., A. K. Stone, M.D., James Minot, M.D., Francis C. Gray, Horatio Davis.

THE BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The regular meeting of this society was held Monday, January 10, with Dr. A. L. Mason in the chair. Several interesting cases were reported and Dr. J. W. Farlow read a paper on "Some Forms of Adenoid Disease which are Often Overlooked and Conditions which Simulate Adenoid Disease." He made the statement that with the exception of traumatism no child under 6 years of age ever has earache without adenoids. He also called attention to the importance of enforcing deep nasal respiration after an adenoid operation.

APPOINTMENTS AT THE BOSTON DISPENSARY.—Dr. Alfred A. Wheeler, James L. Stone, William P. Cones and George A. Harlow have been appointed assistant surgeons; William Coggswell, assistant surgeon to the department for diseases of the genito-urinary system; Sidney A. Lord, assistant physician to the department for diseases of the nervous system, and Drs. William H. Grant, Charles N. Barney, Frederick J. Cotton, Elliott P. Joslin, Frederick W. Pearl, Franklin S. Newell and Joshua C. Hubbard, district physicians.

THE BOYLSTON MEDICAL PRIZE.—The Boylston Medical Prize of $150 has been awarded this year to Dr. Guy Hinsdale of Philadelphia for an essay on "Acromegaly."

Detroit.

THE DETROIT MEDICAL AND LIBRARY ASSOCIATION.—At the meeting April 18, Dr. George W. Moran read a paper on "Cervical Adenitis in Childhood," classifying the disease as follows: Acute, simple chronic, tuberculous and syphilitic. The acute variety he stated is almost always caused by infection from some disease of contagious structure such as catarrh of nose and throat, decayed teeth, middle ear trouble, unhealthy tonsils and stomatitis, but may also be caused in a mild form by any of the eruptive fevers. The diagnosis is easy except when the sub-maxillary or sub-lingual gland is involved; then mumps, spinal caries and edema must be differentiated. The treatment consists in looking well to the condition of the teeth, gums, tonsils and nasopharynx, as in seventy-eight cases of the author's forty-six were caused by carious teeth and suppurating gums, and fifteen by enlarged tonsils and disease of the nose and throat, and in the use of hot applications, liniment or ointment of belladonna combined with opium. When pus forms evacuate as soon as possible. Simple chronic adenitis is also caused by infection as in the acute variety, though of a milder character. Certain skin affections may also cause it. This variety may be confounded with the tuberculous, but age,

history and family history ought to aid in arriving at a definite conclusion. In the latter form, too, there is suppuration, caseation and adhesion, which never occurs in this simple variety. The treatment is tonic after removal of cause and application of pot. iod. ointment. In tuberculous adenitis the upper deep cervical glands are generally the first to be affected, and at first may thus be mistaken for the simple variety. The treatment consists in removing the patient to the most favorable environments, tonic medication, change to more equable climate when possible, and in case of suppuration or caseation, incision and drainage. Excision should be practiced only when the glands are superficial and movable. The author tried nuclein injection in three cases, in one of which there was improvement, in the others none. The syphilitic variety is comparatively a rare affection, and is usually accompanied by glandular enlargement throughout the system. It is almost always met with only as a complication of some other syphilitic manifestation. The diagnosis is easy, antisyphilitic treatment is to be practiced.

THE MICHIGAN STATE MEDICAL SOCIETY will meet in Detroit on the 5th and 6th of May. Every arrangement is being made to have this session of the Society surpass any of its previous meetings.

HEALTH REPORT for the week ending April 23: Number of cases of diphtheria remaining, 5; scarlet fever, 23; total deaths, 112; births, 77.

Philadelphia.

PHILADELPHIA MILK SUPPLY.—Philadelphia's milk is better than its water according to the report of recent chemic analyses made by chemists F. A. Geuth and C. B. Cochran. The subject was recently agitated and was brought to the notice of the State Secretary of Agriculture, Thomas J. Edge. Great care was exercised to have samples of milk from several sources, therefore one-fourth the total number (200) were obtained from the milk depots when first reaching the city, one-fourth from the cows of the dealers, one-fourth from milk jugs in private houses and one-fourth found in the various restaurants of the city. Instead of being artificially prepared and well watered, in many instances there really was an excess of fats, indicating a large amount of cream. In other samples the fats were below the normal average. This variety was more prevalent in the restaurants of the city.

THE UNIVERSITY OF PENNSYLVANIA AND ITS DENTAL DEPARTMENT.—To conform with the high standard of requirements in its other departments, the faculty have decided to require more preliminary education before matriculating anyone in the dental department, and the following have been agreed upon: For the session of 1898–99 a certificate of high school entrance; for the session of 1899–1900 a certificate of two years high school attendance; for the session of 1900–01 a diploma of an approved high school having a three years' course, or a certificate showing three years attendance at a high school having a four years' course, or certificate from other schools showing equivalent education. Or in lieu of such diploma or certificate the candidate will be required to pass a preliminary examination.

DIPHTHERIA DURING WAR TIMES.—While detailed on duty on board the monitor *Nahant*, at the League Island navy yard, Philadelphia, a member of the New York naval reserves became stricken with a well marked case of diphtheria. Thorough disinfection on board, however, has prevented the disease from gaining a foothold among the crew.

STATUS OF SMALLPOX IN PHILADELPHIA.—No further cases of this disease have been reported to the board of health other than the two recently noted. Both cases are being cared for at the Municipal Hospital. As was stated in a previous issue of the JOURNAL, the Municipal Hospital is badly overcrowded, and it is thought an ordinance will soon be brought before the City Council to provide for a separate building for the treatment of this disease.

NEW PROFESSOR OF GENITO-URINARY DISEASES.—Dr. Edward R. Kirby, who for the past twelve years has been assisting in the surgical department of the hospital of the University of Pennsylvania, has lately been elected clinical professor of Genito-urinary diseases at the Medico-Chirurgical College.

TYPHOID STATISTICS OF PHILADELPHIA FOR THE PAST FIVE YEARS.—For the purpose of comparison the report regarding typhoid fever in the above-named city is herewith appended:

1894.

	Cases.	Deaths.
January	137	43
February	125	18
March	157	20

1895.

	Cases.	Deaths.
January	238	36
February	294	64
March	184	48

1896.

	Cases.	Deaths.
January	174	34
February	160	23
March	177	21

1897.

	Cases.	Deaths.
January	173	36
February	114	18
March	179	27

1898.

	Cases.	Deaths.
January	790	65
February	681	75
March	332	54

The report for infectious and contagious diseases for the past two weeks is as follows:

	This week.		Last week.	
	Cases.	Deaths.	Cases.	Deaths.
Diphtheria	81	22	78	13
Typhoid Fever	31	8	55	15
Scarlet fever	68	1	46	4
Total	190	31	179	32

The death rate in Philadelphia per 100,000 population in typhoid fever is 40.

Cincinnati.

THE SOCIETY FOR MEDICAL RESEARCH held its regular monthly meeting Thursday evening April 14 at the Ohio Medical College. The program of the evening was as follows: "Scabies Norwegica" remarks and demonstration, by Dr. A. Ravogli; "Newer Histology of the Brain," by Dr. D. I. Wolfstein. Discussion.

THE forty second annual commencement of the Cincinnati College of Medicine and Surgery took place at the Scottish Rite Cathedral April 13. There were in all twenty-six graduates, of which four were women. Dr. S. C. Ayres, the dean, made the address. The valedictory was by Dr. J. A. Johnston. A banquet followed.

THE next annual meeting of the Ohio State Pediatric Society will be held at Columbus on May 3 and 4.

ACADEMY OF MEDICINE.—The regular meeting of the Academy of Medicine was opened April 18 by the report of Dr. J. C. Oliver, the committee on transportation to the coming meeting of the AMERICAN MEDICAL ASSOCIATION in Denver. The rate reported was one round trip ticket at the cost of fare one way plus two dollars; trip by way of Chicago or St. Louis, or via one city one way and the other on return without extra charges; one dollar additional for every stop over outside these large cities; same rates for wives and families; fifteen making the same trip will be allowed a private car; seventy-five, a special train. Dr. Oliver was followed by the guest of the evening, Dr. Maurice Carnes, the representative of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, who urged coming by way of Chicago stating the pleasure it would give Chicago physicians to entertain the members of the Academy of Medicine.

Report of cases: Dr. Max Thorner, "Complete bony occlu-

sion of the external auditory canal, left ear." The man had noticed gradual diminution of hearing for some years, but had not given it attention until several months ago; it was not an exostosis, for a probe could not be entered at any point either at the circumference or at the center. The operation to be performed on this case will be an incision behind the auricle as in beginning the regular mastoid operation, loosening the attachment with a periosteotome, chiseling away the bony mass, and skin grafting the denuded surface in the hope that the bone will not reform. Dr. Thorner also reported a case of radical mastoid in a child two and a half years old, who had been suffering from a foul-smelling discharge for many months with no improvement under treatment. The operation disclosed caries, and all rotten bone was removed; the peculiar feature was the brain concussion which lasted nearly a week; the child was much emaciated and approaching dissolution when the operation was performed, but when presented at the Academy was apparently healthy in every way. Dr. Merrill Rickets showed a case of tubercular glands of the neck removed by a posterior incision. Dr. Robert Hill three months ago reported a case of ligation of the common carotid and subclavian on the right side for aneurysm of the ascending aorta; in a week the man was up, and the external tumor had greatly diminished in size. A week ago the man died suddenly, and postmortem examination revealed a rupture of the right auricle. The specimen was presented. A cause for this rupture could not be determined. The speaker mentioned cases of heart rupture in which the heart was entirely normal, and stated that had he known there was so much fusiform dilatation to the aorta he would not have operated, but with the sacculation as evidenced by the external tumor, he thought he was justified in the operation and would do the same under similar circumstances. The clot present in the sacculated portion he thought proved that some benefit had been derived from the operation. Dr. Heady reported a case of perforating round ulcer of the duodenum and showed specimen; the ulcer was perfectly round, looking as though it had been punched out with some sharp instrument; was situated just one-half inch outside the pyloric orifice; about two inches away was another ulcer partially healed; the patient had died thirty hours after the onset of the acute symptoms; he did know the cause of the ulceration; there was no history of superficial burns; the literature of the subject presented in over 8000 autopsies, but twelve cases, seven of which were in males. Dr. Rickets then read a paper on "Deaths (ten), Surgical and Causes." The cases were as follows: meningitis in child, gangrene of leg in a man aged 59 years, brain abscess in a child aged 4 and following middle ear disease, peritonitis from ovarian disease, intestinal obstruction from a band, followed by strangulation, fibrosarcoma of the uterus, stone in the bladder complicated with chronic morphinism, empyema of the gall-bladder with rupture, cerebellar abscess following middle ear disease, fracture of the base of the skull in a man 69 years of age who had been kicked by a horse, and where superior maxilla had been driven into the throat and interfered so much with respiration that the pieces were removed, but the patient died two hours after operation. Dr. John Landis read a paper entitled "Paralysis of Sphincter in Clamp and Cautery Operation; Muscles of the Pelvic floor." Discussion.

"Luz," or the Sacrum.—A rabbinic name for the os sacrum was "luz," or the "resurrection bone," it being a bone especially difficult of destruction, and therefore the supposed germ of the survival of the body, and in this connection Dr. Cormer unearths the following from Butler's Hudibras:

> The learned Rabbins of the Jews
> Write there's a bone, which they call Luz,
> I' the rump of man, of such virtue
> No force in nature can do hurt to.
>
> From whence the learned sons of Art
> Os sacrum justly call the part.
>
> —*St. Thomas Hospital Gazette.*

CHANGE OF ADDRESS.

Applegate, R., from Indianapolis to Noblesville, Ind.: Armstrong W. S., from St. Charles and Montrose Boul. to Mayfair, Chicago, Ill.

Booker, F. C., from Richmond, Va. to Rustburg, Va.; Budwig, M., from Baltimore, Md. to 150 2d Ave. New York, N. Y.: Bjorkman, D., from Chicago, Ill. to Racine, Wis.; Barnhill, J. F., from 222 to 412 N. Delaware St., Indianapolis, Ind.; Dr. Bronnell, from Chicago, Ill. to Chilton, Wis.

Cohn, E., from St. Louis, Mo. to St. Jacob, Ill.; Carpenter, E. G., from Cleveland to State Hospital, Columbus, Ohio; Chilgren, from St. Peter, Minn. to Hospital for Insane, Yankton, S. D.; Detchon, H. S., from Iowa City to Victor, Iowa.

Dennis, F. A., from Indianapolis to Crawfordsville, Ind.

Evans, O. H., from Columbus to Thurman, Ohio.

Fitz, G. G., from Iowa City to Emmetsburg, Iowa; Forrester, J., from 904 Peach St. to 814 Sassafras, Erie, Pa.; Fanning, G. J., from Red Lake Minn. to Harlem, Mont.

Graham, D., from Duluth to West Duluth, Minn.; Ghrist, D. M., from Pella to Ames, Iowa; Griffith, W. A., from Keokuk, Iowa to Kinderhook, Mich.

Henry, F. P., from 721 Spruce to 1635 Locust St., Philadelphia, Pa.; Hobbs, A. S., from 199 to 339 N. Illinois St., Indianapolis, Ind.; Holz, A. P., from Milwaukee to Seymour, Wis.; Hovender, J. H., from Chicago, Ill. to Lake View, Iowa.

Jordan, L. H., from Richmond to Mount Jackson, Va.; Jackson, G. E., from Minneapolis to Wheaton, Minn.

Loew, Alex, from 3603 Indiana Ave. to 3929 Prairie Ave., Chicago, Ill.; Lydston, G. F., from 661 Fullerton Ave. to 1095 N. Clark St., Chicago, Ill.; Lemen, H. A., from Augusta, Ga. to Denver, Colo., Box 14; Le Count, E. R., from 1302 to 1415 Madson St., Chicago, Ill.

Moran, F., from Milwaukee to Luxenbourg, Wis.; McKenney, from Des Moines to Davenport, Iowa; Montgomery, F., from Keokuk, Iowa to Clayton, Ill.; Moffit, E. D., from 16 to 8 W. New York St., Indianapolis, Ind.; McKenney, A. D., from Des Moines to Pierson, Iowa.

Purdon, C., from Topeka to Coldwater, Kan.; Parker, E. E., from Indianapolis to Maxinkuckee, Ind.; Petersmeyer, W., from Chicago, Ill. to Odebolt, Iowa.

Rogers, E. C., from Keokuk to Cotter, Iowa.

Smith, J. W., from Richmond to Cumberland, Va.; Stevens, S., from Coloma to Dowagiac, Mich.; Smith, F. L., from Great Barrington to Sheffield, Mass.; Shortridge, W. R., from Hopkinton, Iowa to Elgin, Ill.; Spencer, N. W., from Des Moines to Walnut, Iowa; Sinclair, J., from 4045 Grand Boul, to 740 E. 43d St., Chicago, Ill.; Spivak, C. D., from Calif Building to Denison Building, Denver, Colo.; Shipley, W. M., from Des Moines to Ottosen, Iowa; Spurlock, G. L., from Dade City, Fla. to Gainsville, Texas.

Talford, P. B., from Columbus, Ohio to Adrian, Mich.; Thornton, H. T. from Iowa City to Pocahontas, Iowa.

Wilson, E. F., from 138 E. State to 230 E. Long St., Columbus, Ohio; Windrow, S., from 233 LaSalle Ave. to 408 Dearborn Ave., Chicago, Ill.; Wenzlick, W., from 77 Rush St. to 336 E. North Ave., Chicago, Ill.; Williams, D. H., from Washington, D. C. to 3034 Michigan Ave. Chicago, Ill.; Weaver, T. A., from Toledo to Dalton, Ohio; Williams, W. H., from Chicago to 1 Freeman St., Valparaiso, Ind.

LETTERS RECEIVED.

Atkinson, W. B., Philadelphia, Pa.; Ashford, J. B., Sherwood, Texas; Anders, H. S., Philadelphia, Pa.

Barnes Medical College, St. Louis, Mo.; Brown, Mark A., Cincinnati, Ohio; Berry, W. F., Mt. Clemens, Mich.; Bjorkman, D., Racine, Wis.

Colorado Midland Railway Co., Denver, Colo.; Cramer, P. S., Cincinnati, Ohio; Cain, J. S., Nashville, Tenn.

Dellenbach, C. C., Portland, Mich.

Electro-Medical Manufacturing Co., Chicago, Ill.

Fernald, W. J., Rantoul, Ill.; Florer, T. W., Waxahachie, Texas.

Gerstein, Morris, Boston, Mass.; Graham, J. W., (2) Denver, Colo.

Hummel Advertising Agency, A. L., New York, N. Y.; Hare, H. A., Philadelphia, Pa.; Hektoen, L., Chicago, Ill.

Kinkead, Richard R., Norwich, Conn.; Kennedy, W. W., Winchester, Ill.

Le Fevre, Edwin, Boston, Mass.

Miller, J. P., Des Moines, Iowa; Medical College of Georgia, Augusta, Ga.; Morse Advertising Agency, Lyman D., New York, N. Y.; Musser, J. H., Philadelphia, Pa.; Mink, Arthur E., St. Louis, Mo.; Mason, D., Spokane, Wash.

Norris, D. L., Tupelo, Miss.; Norwich Pharmacal Co., Norwich, N. Y.

Ox Chemical Co., Louisville, Ky.

Parke Davis & Co., Detroit, Mich.

Roberts, H. H., Paris, Ky.; Rio Grande Western Railroad, Salt Lake City, Utah.

Sprouse, Jennie G., Paw Paw, Ill.; Simmons, D. G., Louisville, Ky.; Sterman, W. F., Louisville, Ky.; Saunders, W. B., Philadelphia, Pa.; Sanderson, J. H., Detroit, Mich.; Schieffelin & Co., New York, N. Y.; Smith, J. Whitefield, Bloomington, Ill.; Smith, Kline & French Co., Philadelphia, Pa.

Todd, G. M., Akron, Ohio; Turner, M. L., Griswold, Iowa; Thomas, Homer M., Chicago, Ill.; Tucker, Ernest F., Portland, Oregon.

Voje, J. H., Oconomowoc, Wis.

Walton Oxygen Works, New York, N. Y.; Woods, R., Shickley, Neb.; Wilson, A. J., Chicago, Ill.; White Rock Mineral Spring Co., Waukesha, Wis.

Yates, H. W., Detroit, Mich.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from April 16 to 22, 1898.

Lieut.-Col. Albert Hartsuff, Deputy Surgeon-General, will proceed from Hdqrs. Dept. of the Lakes, Chicago, Ill., to Chickamauga Park, Ga., for temporary duty.

Major Egon A. Koerper, Surgeon, is relieved from duty at Ft. Crook, Neb., and will report by letter to the commanding officer, Dept. of the Missouri, for assignment to duty as chief surgeon of that Department.

Capt. Rudolph G. Ebert, Asst. Surgeon, is relieved from duty at Ft. Missoula, Mont., and will proceed to Tampa, Fla., and report to the commanding officer, Seventeenth Infantry, for duty.

Col. Charles R. Greenleaf, Asst. Surgeon General, will tranfer his duties pertaining to the medical supply depot at San Francisco, Cal., to Lieut.-Col. Johnson V. D. Middleton, Deputy Surgeon-General, chief surgeon, Dept. of California, who will perform them in addition to his present duties, and will also perform the duties of chief surgeon, Dept. of the Columbia, during the remainder of the absence on leave of Lieut.-Col. William D. Wolverton, Deputy Surgeon-General.

Major John Van R. Hoff, Surgeon, is relieved from duty at Vancouver Bks., Washington, and from the temporary charge of the office of the chief surgeon, Dept. of the Columbia. Col. Greenleaf and Major Hoff will repair to Washington, D. C., and report in person to the Surgeon-General of the Army for duty.